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SPONTANEOUS INTRAPERITONEAL RUPTURE OF A TUBERCULOUS BLADDER*

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RUPTURES of the bladder are rare except in cases of external violence, and the so-called "spontaneous rupture" may be considered especially so.

Generally speaking, tuberculosis of the bladder is looked upon as not having a tendency toward rupture and all the authors describe the tuberculous lesions as not penetrating deeply into the tissue. Only in the exceptional case do they induce rupture of the wall of the bladder or the formation of the tuberculous fistulas into the surrounding regions. Similar conditions are reported concerning the non-specific ulcerous types of cystitis; only in the exceptional case does the lesion attack the deeper layers of the wall of the bladder and induce perforation. In view of the rareness of this condition as a clinical entity, the following case is reported:

CASE No. 1890, 1929, Surgical, male, aged 30. At 3:00 A. M. April 6, 1929, the patient was suddenly awakened by a severe pain in the lower part of the chest, anteriorly, which soon became generalized over the abdomen. The pain did not radiate and was steady in character. The patient experienced considerable difficulty in breathing. The pain continued throughout the day and was accompanied by nausea and vomiting. An enema was given without results. The patient slept very little during the night and vomited once the following morning. Another enema was given without results. The pain increased in severity and the abdomen became tense. Since the onset of pain there had been difficulty in voiding, only small amounts of a red-tinged urine being passed at infrequent intervals. For the past ten years the patient has had difficulty in holding urine, voiding small amounts at frequent intervals.

He was admitted to the hospital April 7, 1929, at 5:00 P. M., twenty-six hours after the onset of symptoms. His chief complaint was pain throughout the abdomen, more marked in the left upper quadrant. He was a well-developed man, his face covered with perspiration, his color was good and his tongue moist. His chest was symmetrical with good expansion. The lungs were resonant throughout, the breast sounds normal and there were no râles. The heart showed no enlargement, and was regular in rate and rhythm, with a mild systolic murmur at the apex. The blood pressure was 190/125. The abdomen was rounded with marked rigidity throughout and was very tender to palpation. A mass could be palpated in the right hypochondrium which was thought to be kidney. There was no c. v. t. There was dullness in both flanks.

The temperature was 101°F., the pulse 100, the respirations 28. W. B. C. 24,000. A catheter was passed with considerable difficulty due to partial occlusion of the urethra. A small amount of thick, bloody urine was obtained. A diagnosis of ruptured hollow viscera, probably ruptured bladder, with peritonitis, was made.

Exploration under spinal anesthesia revealed a large amount of thin turbid fluid in the abdominal cavity. The right kidney was considerably enlarged, was soft and felt cystic to palpation. The left kidney was slightly larger than normal and fairly firm. Exploration of the pelvis showed the bladder to be collapsed with thick, nodular walls. There was a perforation one cm. in length, at the vertex occupying a vertical position. A low-grade peritonitis was present in the pelvis involving the loops of intestine occupying this region. The perforation in the bladder showed distinctly that the bladder lesion had extended through the bladder wall and involved the peritoneum immediately beneath where the perforation occurred. The perforation was closed by a running suture of No. 00 chromic catgut which was followed by a second suture burying the first line of sutures. The excess of fluid was removed by means of gauze. A large Penrose drain was placed to the floor of the pelvis and the abdominal wound was sutured in layers. An inlying catheter was placed in the bladder and 1000 c.c. of five per cent. glucose in saline solution were given intravenously. The postoperative condition was satisfactory.

On the following morning the patient's general condition seemed very much improved. He was taking a fair amount of fluids by mouth and the catheter was draining well. He vomited twice during the morning and was given a stomach lavage in the afternoon. At 8:00 P. M. the temperature was normal, the pulse 130, the respirations 30. His general condition remained about the same until the middle of the following day when he showed definite signs of weakening. There was no sign or symptom of a spreading peritonitis. He steadily grew weaker and expired at 4:10 A. M., April 10, 1929, seventy-three hours after admission to the hospital. There had been no drainage through the catheter for sixteen hours before death.

EXCERPTS FROM THE NECROPSY PROTOCOL

Right and left lungs showed no tubercles or glandular enlargements.

Right kidney—weight 660 grams. Sectioning showed many cystic cavities which contained clear yellowish fluid. The pelvis and ureter were markedly dilated. The lower end of the ureter was oc-

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cluded by adhesions, recent in character. The medulla was fibrosed, but there was a considerable amount of renal tissue present. There were many cystic areas but no tubercles. The adrenal gland showed degenerated areas. Microscopy: Hydronephrosis of the kidney, destruction of the ureteral opening due to tuberculous changes.

Left kidney—weight 510 grams. It was soft and showed lobulated areas with white patches on its surface. The capsule was firmly adherent. Sectioning showed much caseation with the entire renal structure destroyed. A few areas were fibrosed and showed necrosis. Many cystic cavities and the pelvis were filled with caseated material. The ureter was fibrosed and the lumen occluded. The adrenal gland showed necrosis. Microscopy: Tuberculosis of the kidney, ureter and the adrenal gland.

Bladder—The mucous membrane showed no trace of normal tissue, the entire mucosa being necrotic. Some areas showed tuberculous involvement. On the posterior wall there was a necrotic area which involved all the layers of the bladder through which the perforation occurred. Surrounding the ureteral orifices were lesions undergoing fibrosis and causing a narrowing of their lumens. Microscopy: The muscle coats showed moderate fibrosis. The mucosa and submucosa showed moderate necrosis. There were many areas where tubercles were surrounded by a dense stroma and infiltrated with lymph and endothelial cells. Many giant cells were seen throughout the stroma.

Diagnosis: Tuberculosis of the bladder. Causes of death: Uremia. Tuberculosis of left kidney and bladder with stricture of ureteral orifices. Toxic myocarditis.

The Meinicke, Wassermann and Kahn reactions were negative.

There is little accurate information concerning the occurrence of ruptures of the bladder. Apparently they are seen, generally speaking, about as often as ruptures of other abdominal organs, the protection afforded by the pelvic bones being offset by the greater liability to overdistention.

Rupture of the bladder can occur only when the bladder contains fluid. The more it contains the more likely it is to rupture. Young[1] states that it is probable that the normal, unobstructed bladder never ruptures from muscular effort, no matter how much urine it contains. Brown and McGill[2] reported a case of a male, aged 28, who while suffering from constipation took a large dose of castor oil and while making violent efforts at defecation, felt something give way in the right inguinal region and immediately felt a burning sensation over the abdomen, which was followed by severe pain. An exploration of the bladder was carried out through the perineal route. The patient died during the operation. At autopsy a perforation of the posterior wall of the bladder was found. This patient did not have an injury and there was no obstruction to the urethra, or disease of the organ.

Many conditions may act as predisposing factors in rupture of the bladder. The common causes are distention of the bladder, alcoholism, urethral stricture, enlarged prostate, retroversion of the gravid uterus, labor, diseases of the bladder wall and imperforate urethra in a fetus. King reports a case of this latter condition.

Goldenberg[3] reports a similar case in which the rupture was caused by the lifting of a pail of water. This is the same force as would be delivered to the bladder by an external blow, but as the force is generated by the patient himself, it must come under the spontaneous type. The symptoms and diagnosis depend upon whether the rupture is intraperitoneal or extraperitoneal. In either type, the history of previous urinary difficulty and the finding of some type of obstruction is significant. If extraperitoneal, the pain may be localized in the lower abdomen, and may radiate to the perineum, penis or legs. Desire to void is usually strong, sometimes amounting to tenesmus, but except where the rupture is very small, no urine can be passed. If any urine is obtained, it is bloody. Fever may occur and be increased by the onset of infection. There is often, especially in the latter stages, intoxication due to absorption of urine or to sepsis, or both, and some patients die apparently from uremia.

In extraperitoneal rupture there is a local tumefaction which can be palpated either in the lower abdomen, the groins or upon rectal or vaginal examination. Catheterization will usually result in obtaining a small amount of bloody fluid. The procedure of injecting a known quantity of fluid and then collecting it by catheter is not infallible, for if the rupture is high, the fluid will not escape from the bladder. A measured quantity of air, as proposed by Vaughan and Rudnick[4], can be introduced into the bladder and viewed with the fluoroscope during the injection. If the bladder is intact, its outline is rounded and regular. If there is a rupture, the air will be seen in the pelvic tissues or prevesical space, if the rupture is extraperitoneal. If the rupture is intraperitoneal, the air will appear in the anterior part of the peritoneal cavity, above the intestines, and the bladder will be partially or entirely collapsed. The treatment of the extraperitoneal rupture is immediate operation. The introduction of a suprapubic tube and relief of the direct cause, when the condition of the patient permits, will suffice for the majority of these cases. The rent in the bladder wall may be repaired through a suprapubic wound which is then closed and bladder drainage obtained by an inlying catheter. Occasionally it will be necessary to incise over the infiltrated areas to prevent infection and toxic absorption.

If the rupture is intraperitoneal, the patient usually experiences sharp abdominal pain, peritoneal irritation, tenderness, fever, a marked desire to urinate with only a few drops of bloody urine passing, and, except in the earliest stages, a toxic general condition. In most instances,

free fluid can be demonstrated in the abdomen.

The treatment consists of an abdominal exploration as soon as the condition is suspected. The rent in the bladder is sutured, free fluid is removed and a large Penrose drain placed in the pelvis and brought out through the abdominal incision. The bladder can then be drained through a suprapubic incision or an inlying catheter. I would prefer the latter procedure. The patient should be placed in a moderate Fowler's position and the usual supportive treatments that are used in modern surgery should be started on these cases. Crosbie[5] believes that it is not necessary to repair the rents in the bladder whether the rupture be extra- or intraperitoneal. With free drainage of the bladder through a suprapubic incision and drainage of the abdomen in the intraperitoneal type, nature will take care of the healing of the rents as they are bound to be fairly well approximated.

Schürer[6] reported a case of spontaneous intraperitoneal rupture of a tuberculous bladder in a man aged 38. In the spring of 1928 he suffered hematuria for eleven days following an injury to his back and abdomen. Three years later he began to have frequency without pain and occasional incontinence. One year later, by means of the cystoscope, smears and animal experimentation, a diagnosis of tuberculosis of the bladder was made. A few days after the diagnosis was confirmed the patient experienced a sudden pain throughout the abdomen, most severe in the region of the umbilicus. Within a short period the abdomen became markedly distended with very firm walls. A diagnosis of peritonitis was made. Exploration of the abdomen showed the following:

A large amount of cloudy exudate was found throughout the abdominal cavity. The loops of intestines were firmly adhered to one another. At the vertex of the bladder there was an area one-half inch in diameter, yellowish in color, in which there were two small perforations. The ulcer was removed and closure effected by means of sutures. The abdominal cavity was drained. A suprapubic fistula of the bladder was formed. This patient died fourteen days following the operation. Autopsy revealed diffuse fibrinopurulent and tuberculous peritonitis, tuberculous pyonephrosis on the left with obliteration of the renal pelvis and ureter, necrotic purulent cystitis, abscess of the prostate and tuberculous urethritis.

Stutzin[7] reported a case in 1918. He states that up to that time he had never found a description of spontaneous perforation due to a tuberculous ulcer of the bladder. He observed a case in a man, aged 24, who had been operated upon for hydrocele of the testis. On the twenty-third day after operation, the first cystic symptoms made their appearance and further examinations revealed tuberculosis of the bladder with mixed infection. Two months after operation peritonitic symptoms and death occurred very suddenly. At autopsy there was found a perforation of the bladder, permeable for three fingers in the true pelvis; along with this there was tuberculosis of the intestinal and mesenteric glands without determinable tuberculosis of the kidneys or genitals.

The two cases that are cited above are the only cases of spontaneous intraperitoneal rupture of the tuberculous bladder that I have been able to find described in the literature. The following writers have reported very interesting cases of the extraperitoneal type: Pillet[8], Guyon[9] and Caulk[10]. Harrison[11] cites a case where an extraperitoneal rupture was converted into an intraperitoneal type in which the peritoneum was perforated near the umbilicus. Early operation gives a very low mortality in both types of cases; however, after thirty-six hours, the outlook in the intraperitoneal rupture is very grave, but not so grave as in 1837, when Harrison said he had never seen and never expected to see a case recover.

REFERENCES

1 Young, Hugh H., and Davis, David M.: Young's practice of urology. Vol. II, page 146. Philadelphia, W. B. Saunders Co.
2 Brown, W. H., and McGill: Lancet 2:971, 1886.
3 Goldenberg, Theodor: Beitr. z. klin. Chir. 61:350 (Jan.) 1909.
4 Vaughan, R. T., and Rudnick, D. F.: New and early sign of ruptured bladder. J. A. M. A. 83:9-12 (July 5) 1924.
5 Crosbie, A. H.: Rupture of the urinary bladder. J. Urol. 12:431-443 (Oct.) 1924.
6 Schürer, Fritz: Deutsche Ztschr. f. Chir. 216:278-283, 1929.
7 Stutzin: Quoted by Schürer, Fritz: Deutsche Ztschr. f. Chir. 216:278-283, 1929.
8 Pillet, E.: Ann. d. mal. d. org. genito-urin. 25: part II, 1281-1287, 1907.
9 Guyon; Quoted by Pillet: Ann. d. mal. d. org. genito-urin. 25: part II, 1281-1287, 1907.
10 Caulk, John R.: Renal tuberculosis. Journal of Urology, 6:97, 1921.
11 Harrison, Robert: Dublin J. M. Sc. 8:1, 1836.

Discussion

Dr. J. D. Barney, Boston, Mass.: I think Dr. Alton's exposition of this case is very commendable. It is an extremely rare condition and I think he has described it in a very competent manner.

I confess to never having seen a case of this sort. The only case that at all resembles it is one which occurred some time ago where an extremely careful and experienced urologist was doing a cystoscopic examination on a young boy known to have tuberculosis of the kidney. The cystoscope passed easily and fluid was injected but none came back. This went on for a few minutes when it was realized that it was probably going into the peritoneal cavity. A few minutes after that, the young man began to complain of a little discomfort in his lower abdomen, so we decided that the cystoscope had gone through the bladder and we had better find out.

Within an hour or so after the cystoscopy the peritoneum was opened and, sure enough,

there was a nice round hole in the vertex of the bladder, with free fluid, mostly boric acid, perhaps some urine, in the lower abdominal cavity. This was removed and a drain put in and I think the bladder wound was sutured. The boy made an excellent recovery.

It was interesting at that time to see what the bladder looked like. It was a small affair the size of a goose egg with walls half an inch thick and apparently of the consistency of cheese. It took no effort whatever on the part of the cystoscopist to push the instrument through. I saw it done and there was no abruptness, roughness, or unusual manipulation. It was the simplest thing you ever saw, and I have always remembered that in doing a similar case where the bladder was contracted and especially when it was tuberculous.

In a case such as Dr. Alton described I think it is of value. It can occur to any of us at any time. If it can occur once, it can occur again. If any length of time elapses, I suppose peritonitis will ensue naturally.

Dr. W. O. Wilder, Springfield, Mass.: *Mr. President and Members*—I have never seen one of these cases of spontaneous rupture myself. I have very little of value to add to the discussion of this most interesting case but I might cite a case of traumatic rupture which I saw about a year ago, and the reason I should like to report it is that it had one special feature or symptom I have never seen mentioned in the textbooks or outside.

I was asked to see this woman in consultation one afternoon and the story given at that time was that (on the preceding day, a Sunday afternoon) she had been for a long automobile ride and on returning home to her apartment, the hallway was rather dark and she caught her foot on the rug and fell to the floor. She immediately experienced some pain in her abdomen but nothing of an alarming type, and I recall that she had no unusual symptoms or shock.

She did not call a doctor until the next morning and the reason she called in the family physician then was on account of having difficulty in voiding though she had intense desire. On being called the doctor stated he tried to catheterize her but failed. He saw her again that Monday afternoon, and again tried to catheterize the woman and was still unable to do so.

In a last extremity he tried to aspirate the bladder and again he was unsuccessful in obtaining any urine. I saw her in the course of a half hour and found her lying in bed in a perfectly nonchalant attitude and indifferent, complaining of no particular symptoms except the desire to void. Her abdomen was flaccid, soft, with no areas of tenderness and no mass was palpable. I passed a glass catheter easily and obtained only a small amount of urine with perhaps several small blood clots.

I must confess that I did not realize the seriousness of the situation at that time. The next day I was out of the city. On Wednesday the doctor called me again and said that the woman was in a state of collapse and he wished I would see her again immediately.

I had the woman sent to the hospital and an examination there showed her to be in a state of collapse, and apparently very toxic. Her pulse was 120 and her skin was cold and clammy, but she still had no unusual symptoms pertaining to her abdomen. It was still soft with possibly somewhat more distention than previously.

I finally suspected then, after this delay, that she probably had a rupture of her bladder. She was immediately taken to the cystoscopy room where I thought I would introduce a known quantity of fluid and see if any returned. This procedure was carried out with no return of fluid. The patient was then taken immediately to the operating room where the bladder was opened and an examination showed a rip in the posterior wall of the bladder which would admit three fingers. I extended the incision higher and opened the abdomen where was found a large amount of free fluid, practically urine.

One symptom which I thought was rather unusual, appearing in this patient's examination at the hospital, was a distinct and intense odor of urine on the woman's breath, a feature which I had never seen reported in the literature and was rather significant, I thought. The rupture in the bladder wall was sewed with several layers of chromic sutures. A cigarette drain was placed in the abdomen and a rubber tube in the bladder, and as I recall it, she left the hospital in about seventeen days.

One lesson that might be gained from such a case as Dr. Alton has just reported is the great need of earlier reference to the surgeon or urologist of all cases of hematuria, and also possibly cases where there is a symptom of extreme frequency of urination so that permanent secondary changes in the bladder wall of the renal T. B. cases may be avoided.

I think the paper by Dr. Alton was unusually well presented and it certainly has been most interesting to me.

Dr. A. H. Crosbie, Boston, Mass.: I have enjoyed the paper very much and I think Dr. Wilder is to be complimented very much on pulling that woman through after the long delay following the rupture. I don't think I have heard of one that was saved after having a ruptured bladder that long.

Several years ago I brought out the importance of draining these cases of rupture of the bladder, by suprapubic tube and also, as Dr. Alton brought out, the fact that it is not really necessary to take the time to sew up the rent in a bladder wall. With the suprapubic tube in, the urine that is formed will flow out through

the tube more easily than it will force itself up into the abdominal cavity. I think it is important to drain the abdominal cavity, but if the patient is in bad condition, you do not need to take the time to sew up the rent in the bladder.

Dr. Arthur T. Jones, Providence, R. I.: I think this may be an opportune time to report a case that I saw last winter. I was called late one night to see in consultation a woman about thirty-five years of age who gave the history of having had pneumonia for two weeks. Her doctor said she had practically recovered from that but that he had observed a tumor in the abdomen. This night he was called and was told that as the patient raised up in bed to take her medicine, she felt as if something had burst.

He thought that she had a cyst which had ruptured and he wanted me to come over immediately to see her. I found this woman in bed in collapse, with cold perspiration and thready pulse. I went into the history a little more carefully. She had a "practical nurse" taking care of her. I asked, "Has this woman been voiding?"

The nurse said, "Oh, yes, yes, Doctor."

"How has she been voiding, frequently?"

"Yes."

"And only small amounts?"

"Yes."

I said, "Let me have a catheter."

We put a catheter in and obtained about eight ounces of bright red blood. I said, "This woman has a spontaneous rupture of the bladder."

She was sent immediately to the Rhode Island Hospital with the history which I had obtained and which I gave them feeling that they would not be able perhaps to get it from the patient, considering the state she was in, and with the recommendation that she have an immediate operation. She was operated about two hours after her arrival.

Before operation one of the assistants had put four ounces of boric acid into the bladder and, because he obtained four ounces return, he decided that she did not have a ruptured bladder. Another of the assistants was called and, deciding that she at least had a surgical belly, he operated on her immediately, under spinal, and found free blood in the abdomen and a rent in the very fundus of the bladder, as he told me afterwards, and as Dr. Wilder expressed it, in which he said he put three fingers.

He sewed her up. The patient died just before he got her off the table.

I think that this is a very good case and one which teaches us that we may very easily get a spontaneous rupture of the bladder. Here was a woman whom he found for at least a week had had a distended bladder and was passing simply the overflow, and at this time attempted to rise up to take her medicine and received her rupture.

There is another point in this also from which we may learn, and that is, if we are going to put fluid into the bladder as a test for rupture, we should use more than four ounces. If we put in twenty ounces and then get four ounces back, we may presume that there is a rent in the bladder.

I thought that this would be a good case to report at this time.

Dr. Richard F. O'Neil, Boston, Mass.: I should like to say a word as to the technique of handling a ruptured bladder. Several of the speakers have advocated draining the peritoneal cavity. In traumatic rupture of the bladder the urine is presumably sterile unless there has been a good deal of bladder instrumentation. Peritoneal drainage invites infection rather than lessens the danger of it. The bladder should be sutured, the peritoneum closed and the bladder drained either suprapubically or by catheter. This is the technique advocated by Dr. D. F. Jones.

I have had no experience with spontaneous rupture of a tuberculous bladder.

Dr. B. H. Alton: I have very little more to say concerning this subject of spontaneous rupture of the bladder. Drs. Barney and Wilder reported cases of traumatic rupture of the bladder. I purposely kept away from the subject of traumatic rupture as it would mean a very much longer paper and I wished to confine my remarks to the spontaneous and the tuberculous types.

Dr. O'Neil brought up the point of not draining the abdominal cavity in cases of traumatic rupture. Several authors who have written on this subject have put forth the same view, but as a rule, the urine is not contaminated and therefore abdominal drainage is not always necessary.

In the type of case that I reported the tuberculous infection was of long standing. Usually the bladder is secondarily infected, which would require drainage of the abdominal cavity.

I wish to thank Drs. Barney, Wilder, Crosbie, Jones and O'Neil for their discussions of my paper.

BLOOD SUGAR CHANGES IN CHILDREN FOLLOWING SURGICAL OPERATION*

BY RALPH W. DAFFINEE, M.D.,† JOSEPH GARLAND, M.D.,† AND MILDRED G. GRAY, B.S.†

IN view of the work reported by MacLean and Sullivan[1] on the blood sugar in status lymphaticus, we have made a study of blood sugar changes in children undergoing operation at the Massachusetts General Hospital. To this group have been added several cases of thymic enlargement, cervical adenitis and generalized convulsions for purpose of comparison.

Our series comprises fifty-one cases, of which twenty are summarized in Table I. These twenty cases are operative, with diagnoses varying from laparotomy to plastic repair. We do not include fourteen operative cases in which only one sugar determination was made. There were twelve cases of convulsions. Some of the blood determinations in this group were made while the patients were having convulsions, others at the

TABLE I

Name of Patient	Age	Operation	Length (min.)	Anesthetic and method of administration	X-ray of thymus	No. of treatments	Preop. sugar (mg. %)	Postop. sugar (mg. %)
Did.	9	4th stage plastic—Thiersch graft to leg	90	Ether—2½ oz. drop	Negative	0	85	98
Fra.	7	Excision of T. B. cervical glands	64	Ether—6 oz. cone & Connell	Negative	0	82	115
Gua.	10	Appendectomy	33	Ether—3 oz. drop	Negative	0	82	105
Han.	9	Sequestrectomy—rt. humerus	53	Ether—4 oz. drop	Negative	0	105	116
Han.	7	Appendectomy with drainage	45	Ether—6 oz. cone	Negative	0	57	68
Kir.	8	Tendon and nerve suture	55	Ether—4 oz. cone	Negative	0	95	112
Laf.	9	Explor. laparotomy and appendectomy	48	Ether—3 oz. drop	Negative	0	94	101
Lun.	5	Repair of left inguinal hernia	45	Ether—2½ oz. cone	Negative	0	78	87
McC.	6	Cystoscopy	65	Ether—3 oz. cone	Negative	0	76	91
Bat.	8	Closure of gastrostomy	93	Ether—8 oz. cone	Negative	0	87	96
Ada.	5	Incision and drainage—Brodie's abscess	25	Ether—1½ oz. drop	Negative	0	95	103
Bak.	7	Sequestrectomy—rt. tibia and rt. humerus	75	Ether—2 oz. drop	Negative	0	79	120
And.	5	Rib resection	30	Local—novocaine	Negative	0	94	100
Mil.	3	Closure of postoperative sinus	44	Ether—3 oz. drop	(1) Enlarged (2) Smaller	1	87	93
Moe.	5	Excision of T. B. cervical glands	82	Ether—11 oz. Connell	Negative	0	80	149
Goo.	12	Appendectomy	42	Spinal—novocaine	———	—	78	92
Loi.	10	Repair of right inguinal hernia	40	Ether—3 oz. drop	Negative	0	97	106
O'Lo.	10	Excision of T. B. cervical glands	84	Ether—? cone & Connell	Negative	0	79	92
Ros.	8	Exploration and ureteral lithotomy	50	Ether—2 oz. drop	Negative	0	97	106
She.	7	Trocar thoracotomy	20	Local—novocaine	Negative	0	87	104

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termination of the attacks. In the three cases of enlarged thymus and the two cases of enlarged cervical glands, routine fasting blood sugars were taken.

The lowest values were found in two cases of convulsions where the sugar content was thirty-five and fifty-one mgm. per cent respectively. Both of these cases had been in convulsions for a considerable length of time.

The highest value was one hundred and forty-one mgm. per cent., which appeared in an infant with cervical adenitis.

Our cases included none with a postoperative fatality and there were no cases of proven status thymicolymphaticus. In one infant there was a postoperative "thymic reaction", in which a brief period of apnea, accompanied by a fall in pulse rate appeared. This infant had a "suspicious" thymus by x-ray, and a fasting blood sugar of sixty-two mgm. per cent. Five months later, involution of the thymus having been hastened by an x-ray treatment, operation was performed, with the reaction occurring in the afternoon. The other cases of thymic enlargement, as determined by the x-ray, showed normal blood sugar values.

Three of the cases showing enlarged thymus by x-ray gave histories of having undergone previous operations without difficulty.

The blood sugar rose following operation in all of our cases, whether the anesthesia was general or local, brief or prolonged. This rise varied from seven to sixty-nine mgm. per cent. We are not willing to offer any hypothesis as to why the blood sugar should rise during anesthesia, although it would seem from our findings that this occurs in children. From the cases in which local anesthesia was used, it would appear that the rise is not due wholly to the pharmacologic action of ether.

Recent work seems to show no relation between the size of the thymus and status lymphaticus and, in fact, casts some doubt on the existence of the syndrome known as status lymphaticus.

MacLean and Sullivan pointed out the similarity of death in cases of so-called status lymphaticus and cases of sugar shock from insulin overdosage. They found the sugar to be consistently low,—obtaining values of fifty-two, fifty-seven, and forty-eight mgm. per cent. In deaths from other causes the sugar was normal. Blood sugar values in cases of enlarged thymus, not in convulsions, were normal in five cases, low in one. They suggested that an acute suprarenal insufficiency was responsible for the deaths classed as status lymphaticus.

(In a long study of a case of nephritis with convulsions, Metcalf and Moriarty[2] showed consistent rises in blood sugar values, with a rapid return to normal after the convulsions.)

The blood sugar in fasting children, according to Hoeffel and Moriarty[3], becomes low, and in an epileptic the seizures are reduced in number. The sugar level in such cases is lower than in insulin shock (usually below sixty mgm.), but acidosis is simultaneously present, and no symptoms develop. They suggest that the very low blood sugar in fasting epileptic children may indicate a greater amount of depletion of carbohydrate stores in childhood, and will help to explain the increased tendency to acidosis.

Young and Turnbull[4], in their study under the auspices of the British Medical Research Council, have cast most doubt on the status lymphaticus theory. They found no constant enlargement of the thymus in deaths in which the cause was not adequately explained. No constant relationship was found between thymus weight and amount of lymphatic tissue. They found no arterial hypoplasia in association with large thymus glands. They consider that an abnormally large thymus in itself cannot be considered as indicative of "status thymico-lymphaticus" when no obvious cause of death is found postmortem. They corroborate the figures ordinarily accepted for average thymus weight and percentage proportions of thymic weight to body weight.

They conclude that there is "no evidence that so-called 'status thymico-lymphaticus' has any existence as a pathological entity".

REFERENCES

1 MacLean, A. B., and Sullivan, R. C.: Blood sugar in status thymicolymphaticus; new theory as to cause of sudden death. Proc. Soc. Exper. Biol. & Med. 23:425 (Mar.) 1926.
2 Metcalf, K. M., and Moriarty, M.: Blood chemical findings during convulsions in acute hemorrhagic nephritis. Am. J. Dis. Child. 31:65 (Jan.) 1926.
3 Hoeffel, G. N., and Moriarty, M. E.: Effect of fasting on the metabolism of epileptic children. Am. J. Dis. Child. 28:16 (July) 1924.
4 Young, M., and Turnbull, H. M.: Analysis of data collected by status lymphaticus investigation committee. J. Path. & Bact. 34:213 (Mar.) 1931.

AN IMPROVED ORAL METHOD FOR CHOLECYSTOGRAPHY*

BY L. R. WHITAKER, M.D.,† AND S. W. ELLSWORTH, M.D.†

THE essential features of the procedure to be described are the administration of two full doses of tetraiodophenolphthalein, with an interval of six to eight hours; and the prevention of emptying of the gall bladder by allowing only carbohydrate food between the first and second dose—thus supplying more radiopaque material, and allowing more time for its concentration in the gallbladder, thereby increasing the density of the shadow and the reliability of the method.

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Graham has always insisted, and many others have agreed, that the intravenous administration of the drug is far more dependable than giving it by mouth. Yet the greater convenience and safety of the oral method have led to numerous attempts at improvement. One of these has been made by Sandström[1] which consists in giving small doses of sodium tetraiodophenolphthalein over a period of two to four days, upon the principle that since the drug is slowly eliminated, on account of reabsorption from the intestine, its concentration in the bile is thereby increased. Thus denser shadows of the gallbladder have been obtained than by the usual oral method. However, since no provision is made for preventing the emptying of the gallbladder, which follows ordinary meals, and since the cathartic action of the drug may in some cases lead to rapid elimination, the increased dosage may not always be advantageous.

Physiologic experimentation has demonstrated that carbohydrate foods produce no emptying of the gallbladder[2]. If, then, only such foods are given after the first dose of the drug, repeated administration should result in increased concentration in the gallbladder, even in spite of the cathartic action.

Our tentative method follows. It can be modified greatly so long as the principle of preventing emptying of the vesicle between doses is carried out.

At noon the patient takes an ordinary meal. Immediately afterward a regular dose of sodium tetraiodophenolphthalein (4-5 gms.) prepared for oral administration is given. Following this, nothing but water is taken by mouth until 8 P. M., when a carbohydrate meal is given, consisting, for example, of dry toast or white crackers, any fruit or fruit juice, clear tea or coffee and sugar. A second regular dose of the drug is then administered, following which nothing but water is allowed, the roentgenologic study being made the next morning.

The advantage of this arrangement is that the patient's routine is little disturbed. After taking the first dose at noon the day before the examination, he can usually continue his work during the afternoon. There may be occasional nausea or vomiting and slight abdominal cramps associated with catharsis. Contrary to expecta-

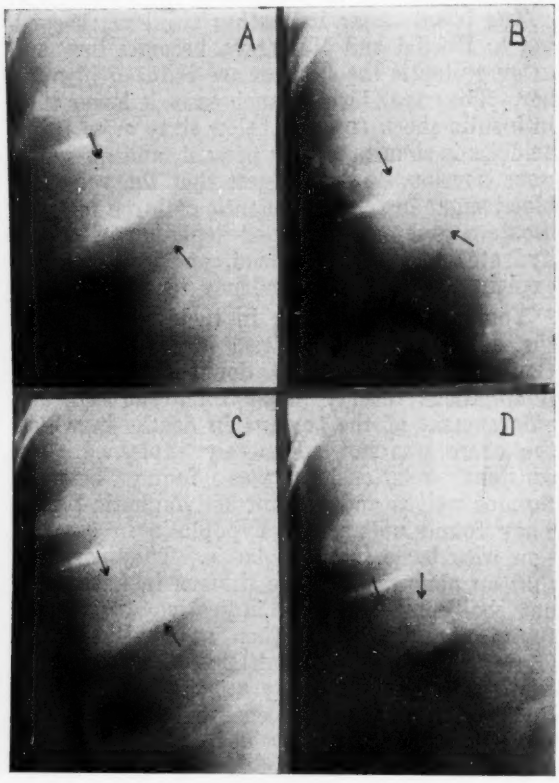


FIG. 1. Illustrates shadows obtained by the combined intravenous-oral method (three-fourths standard dose by each route). Compare with Fig. 2.

A. Roentgenogram 14 hours after giving the drug (30 mg. per kg. intravenously and three-fourths regular oral dose).
B. Same patient one-half hour after a fat-rich meal.
C. One hour after a fat-rich meal.
D. Four hours after a fat-rich meal.

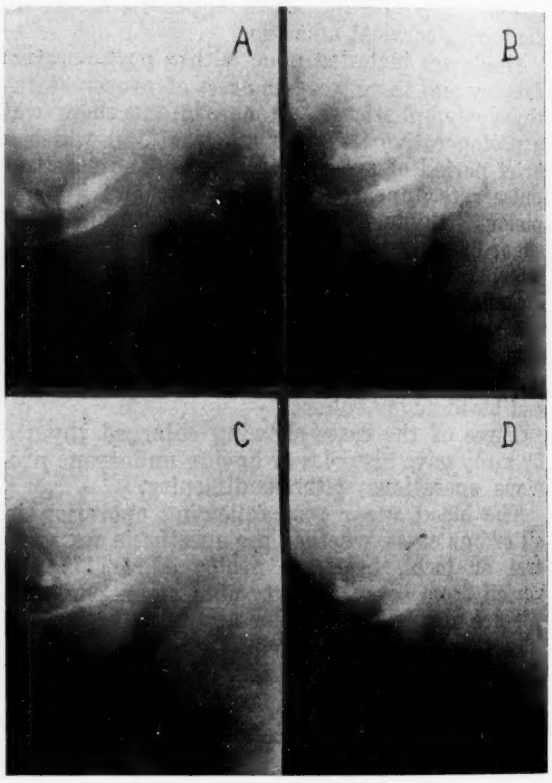


FIG. 2. Illustrates shadows obtained by the improved "double-oral method" herein set forth. Same patient as in Fig. 1.

A. Roentgenogram 20 hours after first oral dose and 13 hours after second oral dose.
B. Same patient one-half hour after fat-rich meal.
C. One and one-half hours after a fat-rich meal.
D. Three and one-half hours after a fat-rich meal. Compare with Fig. 1.

tion, these symptoms are not generally aggravated by the second dose. The patient must be made to understand the directions perfectly, a printed copy of which should be given him. When he presents himself for examination he should be questioned on every point in order that we may know how much dependence can be placed upon the test. Control of the patient is a necessity for reliability.

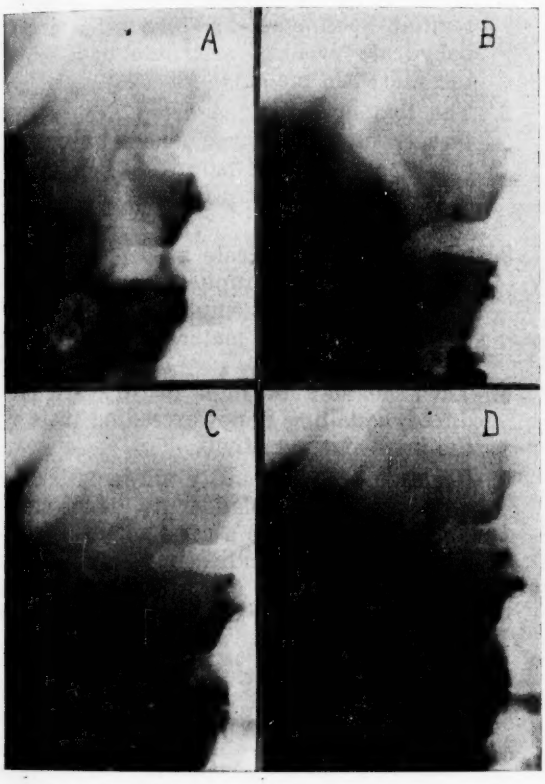


FIG. 3. Illustrates shadows obtained by the regular oral method. Compare with Fig. 4.

A. Roentgenogram 15 hours after single oral dose.
B. Same patient one hour after a fat-rich meal.
C. One and one-half hours after a fat-rich meal. Shadow too faint to be visible.
D. Two hours after a fat-rich meal. No shadow.

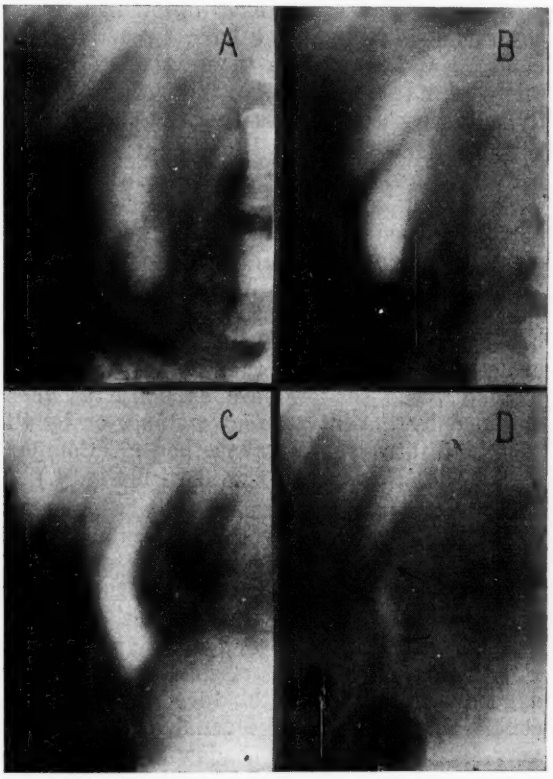


FIG. 4. Illustrates shadows obtained by the improved oral method (double-oral dose). Same patient as in Fig. 3.

A. Roentgenogram 20 hours after the first oral dose and 14 hours after the second oral dose.
B. Same patient three-fourths hour after a fat-rich meal.
C. One and one-fourth hours after a fat-rich meal.
D. Two hours after a fat-rich meal. Compare with Fig. 3D. In contrast note the high density and visibility of the small shadow here. This is important in demonstrating marked elasticity and contractibility of the vesicular wall; and in the fact that stones, if present, are brought out clearer in the smaller volume of opaque medium.

If a good shadow of the gallbladder is obtained, very well. The uncertainty comes when no shadow, or a very faint one, is visible. Then, to make this significant, we must be sure that the patient took all of the drug prescribed; that he did not vomit too much of it; that he ate no fat or protein after the first dose; and that purgation was not so marked that there was a probability of too rapid elimination of the drug. If some of these conditions render the test doubtful, it should be repeated intravenously.

The importance of good roentgenologic technique has been pointed out often but must still be emphasized. We have seen many instances in which a faint shadow of the gallbladder was not visible or the negative shadows due to stones did not show up until several films had been made and the exposure and development perfected in a particular case.

Likewise the importance of noting the emptying of the gallbladder after the fatty meal must be re-affirmed[3]. Any meal with a high fat content will do, but a standard is preferable. We use four egg yolks, one half pint of cream, and gingerale to flavor[4]. Progressive reduction in size of the shadow to the smallest point should be noted and exposures must be made often enough to do this—at half-hourly or hourly intervals. On account of the variable emptying time no routine using only a few films can be followed. *Since cholecystography is a physiologic test it must be conducted like a physiologic experiment, that is, intelligently, adapting the procedure to the conditions.* It is not enough to know that the gallbladder empties, but the emptying process should be observed. One of the most important reasons for this is that small

cholesterol stones may show negative shadows only after the mass of opaque material in the vesicle has been greatly reduced, and if the vesicle is not radiographed at the time when it reaches this small size in the course of its emptying, the negative shadows indicative of stones might not be seen.

Another reason for noting contractibility in the gallbladder is that much useful information is thus obtained with regard to the problem of treatment. For example, a gallbladder which contracts markedly must have an active musculature and cannot be severely affected with sclerosis; its serosa may be stripped away readily, allowing a subserous resection[5].

Cholecystography according to the technique here described has been performed in fifty cases with normal gallbladders. The shadows invariably have been denser than with the usual oral method. In fact, the faintness and uncertainty of the shadow due to failure of absorption and sufficient concentration of the dye in the vesicle has been heretofore the chief fault with oral cholecystography. By this new "double-oral method", the shadows are as dense as those obtained by the intravenous method, or by the combined intravenous-oral method[4]. (Compare Fig. 1 with Fig. 2, and Fig. 3 with Fig. 4.)

There are several reasons why it is important to obtain as high density of the vesicular shadow as possible. Individuals and their gall bladders vary. Experiments have shown that among normal persons, with repeated trials, the shadows in some are always less dense than in others. For this reason faintness of shadow alone is not a good criterion of gallbladder disease. It is conceivable that with the usual oral method a very faint shadow or no shadow at all might be produced, leading to an interpretation of a diseased gallbladder, while with the intravenous or "double-oral method" a shadow would be produced which could be seen to contract to a very small size after a fat-rich meal, proving the vesicle to be essentially normal. (Compare Fig. 3 with Fig. 4.)

It is this fact, that with dense shadows the vesicle can be observed to reduce progressively in size to practically complete emptying, which is of great significance, since it indicates a nonsclerotic wall and active musculature; and furthermore, allows the question of stones to be settled. If by chance any small stones were present in a vesicle reduced to the size shown in Fig. 2D and Fig. 4D, they would almost certainly be noted by contrast in the decreased volume of opaque material. The only exception would be the calcium stone which is opaque in itself and shows on the plain film.

The great advantage, then, of the "double-oral method" lies in the high density of shadow which it produces, with avoidance of the inconvenience, discomfort, and risk of administering the drug intravenously.

SUMMARY

1. By the method herein set forth two full oral doses of sodium tetraiodophenolphthalein are administered—one after the regular noon meal and one after a carbohydrate evening meal the day before the films are made.
2. The two doses of the drug given at intervals supply a large amount of radiopaque material and more time for its collection and concentration in the gallbladder.
3. The pure carbohydrate meal given before the second dose supplies nourishment to the patient without emptying the gallbladder of radiopaque material derived from the first dose.
4. Thus shadows of high density are produced, equalling if not exceeding those by the intravenous method.
5. Shadows of high density are important in allowing the gallbladder to be observed during reduction to a very small size after a fat-rich meal, indicating normality of the vesicular wall, and ruling out stones.
6. The inconvenience and systemic reactions of the intravenous method are avoided, and no gastro-enteric reactions of any severity have been encountered in fifty cases with the improved "double-oral-method".

NOTE:

Owing to the difficulties in reproduction of roentgenograms of soft tissues, the sets of illustrations do not give a strictly accurate basis for comparison of the different methods in these particular cases. In our series of fifty, however, the shadows by the "double-oral" method are consistently superior.

REFERENCES

1 Sandström, C.: Eine verbesserte administrationsweise bei den peroralen cholezystographien (mittels wiederholter verabreichung des kontrastsalzes). Acta radiol. 12:8, 1931.

2 Krause, W. F., and Whitaker, L. R.: Effects of different food substances upon emptying of the gall bladder. Am. J. Physiol. 87:172-179 (Nov.) 1928.

3 Sosman, M C.; Whitaker, L. R., and Edson, P. J.: Clinical and experimental cholecystography. Am. J. Roentgenol. 14:495-503 (Dec.) 1925.

4 Levene, G., and Whitaker, L. R.: New methods for the clinical study of the gall bladder. An elaboration of cholecystography with simultaneous examination of the stomach and duodenum. New Eng. J. Med. 202:203-214 (Jan. 30) 1930.

5 Whitaker, L. R.: Subperitoneal cholecystectomy. Preliminary clinical report of a new method. Am. J. Surg. 13:273-280 (Aug.) 1931.

PLASTIC REPAIR FOR PARALYSIS OF ABDOMINAL MUSCULATURE*

A Preliminary Report

BY C. L. LOWMAN, M.D.†

SINCE 1925, in the clinic of the Orthopaedic Hospital, our attention has been repeatedly drawn to the occurrence of paralysis, or paresis, of some or all of the abdominal muscles.

We have studied the condition continuously, including in our observations the facts learned from a two-year survey of scoliosis cases, made in conjunction with Dr. Robert Carroll, and have gradually crystallized our opinions.

We feel very definitely that the importance of trunk and spinal stabilization is in a large measure due to the influence of the abdominal musculature, both intrinsically and extrinsically, intrinsically, by its direct action between rib cage, pelvis, and spinal column; and extrinsically by acting as fixators for other muscles, such as quadratus lumborum, intercostals and femoral muscles. The absence or weakness of specific muscles action, as seen in poliomyelitis, brings out sharply the effect of normal action.

We have all seen the common increase of lumbar lordosis from increased forward tilt of the pelvis when paralysis or marked weakness of the abdominals occurs. This occurs symmetrically when the spinal muscles are uninvolved or symmetrically affected, and the abdominals wholly, or at least symmetrically, involved. When, however, either or both are asymmetrically involved, we have noted that lateral deviations, and torsion occurs because of the unopposed tension of the stronger groups.

The demonstration of Beevor's sign is very definite if either upper or lower segment of the Rectus Abdominalis is involved. The test is evidenced by the moving of the umbilicus up or down when the head is, or head and shoulders are raised voluntarily.

The upper and lower halves of the recti have separate innervations and hence often one section only is involved; consequently, activation of the other will pull the navel in the direction of its action. Likewise, if either right or left obliques are involved, asymmetrically, there is movement of the navel toward the sound side diagonally upward or downward, or laterally, depending upon which groups are unopposed.

Two years ago I decided that upon the first opportunity we would attempt to recapture the wasted effort of the still viable portion of the rectus and figured out that a fascial extension forming a tendon would be a perfectly sound procedure.

Conferences with my colleagues, orthopedists, general surgeons, and obstetricians, failed to produce any objections theoretically. None of them had ever heard of such a procedure and neither had I, but I felt certain it was sound, not difficult or dangerous, and would do no harm even if much good did not result.

Our first case was done nine weeks ago as follows:

A. D., a girl of eighteen, a very severe poliomyelitis case, who had come to us nine years ago, unable to walk, both legs and body involved, with foot deformities, back knee, and severe scoliosis. The right pelvis sagged toward the weaker side and the lumbar spine was curved toward the right in a large curve and rotated badly.

During the past few years she had the following operations:

3-10-25—Transplantation of extensor proprius hallucis to anterior tibial, right. Peroneus longus to astragaloscaphoid junction. Subastragaloid arthrodesis.

11-3-25—Transplant of peroneus longus to scapho-astragaloid junction and subastragaloid arthrodesis.

10-20-27—Spinal fusion.

7-17-28—Osteotomy of right tibia. Fixation of patella, right to tibia to check back knee.

2-7-30—Transplant of biceps to patella, left.

These procedures had gradually improved her until she was getting around fairly well with braces and short crutches.

Further study of the abdominal condition showed the upper rectus, on both sides, and the upper left oblique sufficiently active to pull the navel upward and to the left about one and a half inches. The right abdominals and the lower half of the rectus on both sides, being wholly inactive, showed very decidedly that this form of involvement had a good deal to do with the sagging of the pelvis on the right, and undoubtedly also, both directly and indirectly, aided in forming the scoliotic curve.

A careful check of the muscle chart showed as follows on a scale of 9 as normal:

In July, 1926					
Spinal Extension	Right	3	Left	3	
Laterals	"	4	"	5	
In July, 1926					
Abdomino-rectus	"	4	"	5	
Obliques	"	4	"	6	
In July, 1931					
Spinal Extension	"	6	"	6	
Laterals	"	5	"	4	
Abdomino-rectus	"	5	"	5	
Obliques		5		4	Upper Left
Oblique	Upper Right	?			

I felt certain that harnessing this wasted effort to the pelvis might result in considerable good.

On July 17, 1931, we transplanted two strips of fascia, one inch wide and about six inches long, from the right thigh, placing one from the umbilicus to the symphysis, and the other from the same region to the outer portion of the crest of the right ilium.

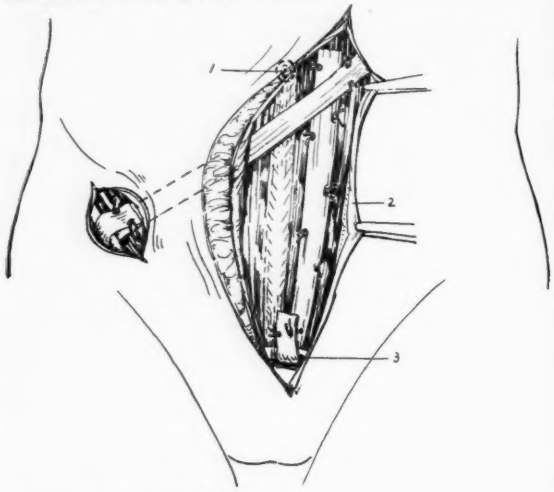
The first strip was stitched firmly with silk to the viable upper section for about two inches above and to the left of the navel, and spread out over the paralyzed lower section of the muscle inside its aponeurotic covering. It was caught every inch or so on either side with silk down to the symphysis. Strong clamps then grasped the umbilical stem and it was drawn down to a taut position, and the lower end of the fascial strap, having been passed under an osteoperiosteal loop raised from the symphysis, was firmly sutured there. The redundant portion, spread out and reflected upward, was stitched down and the aponeurosis closed with 0 chromic. A tunnel was next made in the subcutaneous fat to the anterior superior spine on the right side, and the other strap, after being stitched firmly to the right

*Read at Los Angeles, November 7, 1931, before the joint meeting of the San Francisco and Los Angeles Orthopaedic Societies.

†Lowman—Lecturer on Growth Divergencies, University of Southern California and Pomona College. For record and address of author see "This Week's Issue", page 1210.

upper rectus at the umbilicus, passed through it, while the navel was drawn obliquely down and over toward the right; the lower end of the graft was stitched firmly to the periosteal flap and the adjacent portion of Poupart's ligament lifted with it, silk being used as before.

The usual fascial and skin closure was done and the patient placed in bed in Fowler's position for twenty-one days. Stitches removed on the thirteenth postoperative day, and when first tested, raising the head forward, produced tension on these artificial tendons but failed wholly to move the umbilicus from its fixed position. On the twenty-sixth day exercises in the pool in recumbency were begun.



1. Umbilicus.
2. Reflected aponeurosis.
3. Osteo-periosteal implantation.

The patient noticed the increased feeling of tension and support of the abdominal wall, and on the thirty-second day postoperative was allowed to walk in deep water; later, to use crutches and get around carefully at home.

Special exercises, such as head raising against resistance and head and shoulder raising, with some one grasping her hands to graduate the load but allow a greater effort at lifting through a greater range, were instituted, together with sinusoidal (surging type) and pool exercises.

The mother commented six weeks later on the improvement in her sitting position. On September 8, 1931 she reported that she could sit longer without fatiguing and with better posture.

Three months postoperative, the girl states that in walking she does not have to roll or "throw" her hip and leg around as she did and she notes that all efforts at walking produce noticeable tension in the abdominal wall.

Six months postoperative still showing marked improvement. Her father, who is a physician, reports a very real and worth while reduction of fatigue strain.

We cannot predict at this time what the future will be because we do not know how much comeback may occur in the muscles or how much the remaining viable portions can be hypertrophied to carry the load. The straps of fascia were narrower than we would have liked but were all the width we could get due to the paralysis of the leg. Whether they will carry the load we do not know, but we expect the scar and the aponeurosis to shorten up somewhat and help take some of the strain.

Case two has been done such a short time that nothing more than the description and indications can be given now.

E. C., girl aged twelve, poliomyelitis 1925, very moderate involvement of abdominal and low back groups; legs O. K.; arms, shoulders and upper back O. K., except some slight unbalance in scapular muscles.

This was the first case that caused us to think of the relation of the abdominal involvement to scoliosis, which began early, even while she was still recumbent, and has progressed in spite of the most exacting and continuous treatment we have been able to devise, such as recumbency, in traction braces, exercises, baking, and massage, etc.

A dorsal kyphos has formed with a moderate right curve, the ribs buckling under the scapula and forcing it forward. All braces have been specially formed and fitted to hold the right scapula back and down, and absolutely all pressure of apparatus has been prevented in the right axillary area. For several months even a plaster shoulder spica was worn in recumbency to keep pressure on the kyphos forward and prevent the shortening pectorals to carry the arm weight against the right thorax. The flattening persisted and it became increasingly evident that the influence of the abdominal paralysis on the thorax was progressing directly in line with our recorded observations in 1925, at which time we predicted the possibility and the probability of a curvature and discussed the need of fusion at a later date with the parents, to prepare them in anticipation of it.

At the time the question of what to do had arisen. Fusion of the dorsal curve might, from the body list and the uncorrected abdominal situation, necessitate a second lumbar fusion and neither of them would help the abdominal situation, which I believe to be influencing the thoracic rotation.

In this instance, the navel travels downward because the paralysis is of the upper rectus. There is definite involvement of the lateral abdominals, the amount or exact location being very difficult to estimate because she is stout and stocky.

At operation on September 15, 1931 incision was made from the umbilicus to the ensiform and all tissue raised from the upper rectus on both sides, up to and along the margin of the ribs. Strips of fascia one inch wide were securely sutured to the lower rectus on each side as stated above. That on the left was placed more diagonally toward the left because the lower left oblique was unopposed.

The implantation was made by splitting the last rib and raising an osteoperiosteal and cartilaginous loop and passing the transplant under it. This was firmly sutured and the redundant portion reflected back and sutured below.

Aponeurosis was closed with 0 chromic; fascia with plain, and skin with dermol.

Addendum

Eight weeks postoperative, examination showed the abdomen firm, Beevor's sign absent, more sensation of power in the abdominal wall, and ability to raise the extended left leg while recumbent, without fatigue. Previously she could only lift the left leg with great difficulty three or four times, and showed weakness in hip flexion on that side. This improvement leads us to conclude that the intrinsic power of the psoas had not been weakened so much as was supposed, but interference with the extrinsic fixation function of the abdominal musculature materially decreased its action.

Two more cases have been done, a boy of seven and a girl of seventeen. The former was paralyzed a year ago and had almost wholly a local involvement of the abdominal group. Although he has been on a Bradford frame continuously since his paralysis, he was developing a scoliosis, which we felt was caused by the disturbed fixation of the abdominal muscles. Fixation for the pull of the serratus magnus and transversalis on one side, with weakness on the opposite side has, even in recumbency, started deviation in a spine previously straight.

In the mid-year number of the *Journal of Bone and Joint Surgery*, in an article on infantile paralysis by Dr. Fritz Lange, comment is made that as greatly as it is to be desired, nothing has been done for paralysis of the abdominal muscles.

In conclusion, we feel that for the improvement of the function of the abdominal muscles and for the probable influence on spinal curvature in paralysis cases, a greater study of the kinetic details of these muscles is desirable.

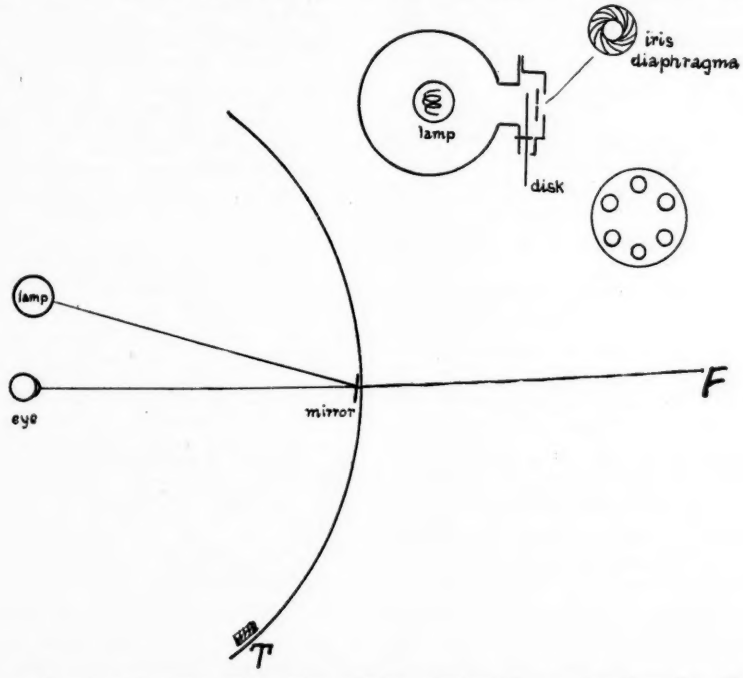
A FIXATION POINT IN PERIMETRY*

BY JOSEPH I. PASCAL, M.D.†

PERIMETRY has now become more or less routine in good ophthalmic work. But it is stepping out, so to speak, beyond the confines of ophthalmology, into other specialties. The neurologists, for instance, are taking it up and finding that a perimetric examination often yields data that are of great value both in diagnosis and in treatment. In view of this extension of perimetry, it becomes especially desirable to seek to eliminate those features of the test that make it unduly difficult and time-consuming.

Now one of the most disturbing elements in the practice of perimetry is the difficulty of maintaining steady fixation on the part of the patient. It requires a strong effort, even with intelligent, coöperating patients, to continue fixing on the central target when their attention is on a moving target in the periphery. And with the less intelligent and less coöperating individuals this difficulty is greatly increased. Modern campimeters solve this problem, in a way, by providing binocular fixation. This steadies the examined eye. The campimeter, however, is limited in its range and cannot entirely replace the perimeter. In casting about for a better fixation point, the application of one of the principles of the photoscope (described in the *American Journal of Ophthalmology*, January 1927)[1] was tried with remarkably good results.

It was found that when the central fixed target is situated *beyond* the arc of the perimeter and further than the moving peripheral target, the tendency for the patient to turn his eye to the moving target is appreciably reduced. One can readily note this fact by first trying perimetry with the usual target attached to the arc of the perimeter and therefore at the same distance from the patient as the peripherally moving target, and then trying perimetry with an arrangement where the central target is situated further than the peripheral target. Whatever the explanation of this may be, the fact can be utilized by arranging for the fixation target herewith sketched.



At the center of the arc of the perimeter is placed a small plane, ten millimeter mirror (M) slightly inclined downward. It is fixed and does not revolve with the arc. Below the patient's chin, attached to the supporting bar, is a small housing carrying a small electric bulb. The current may be derived either from a small battery, or from the general current. In perimeters having a special artificial lighting arrangement, this bulb may be made part of the general illuminating device. In front of the bulb is a revolving disk, D, containing a variety of fixation targets, which can be placed behind the opening, O, in the iris diaphragm, I. As the patient, E, looks into the mirror, he sees the reflected target projected behind the plane of the perimeter arc. The movable test object, T, is much closer to the patient than the fixed target, F. The examiner, however, can freely move behind the arc without obstructing the target.

*Device demonstrated at the June meeting of the Vienna Ophthalmological Society, Vienna, Austria.

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Many valuable refinements in perimeter fixation can be obtained by this arrangement. By using an iris diaphragm, the *size* of the fixation target can be readily varied to suit the individual case. By using a strong light and filters of various density in disk D, the *brightness* of the fixation targets can be readily altered. By incorporating colored filters in disk D, the *color* of the target can be readily altered. By incorporating platelets with different designs in disk D, the *form* of the target can be quickly changed. Thus the target may take the form of a square, a cross, a ring with black center and white border, especially suitable for fixation in cases of central scotoma, or a variety of other forms. It is self-evident that changing now and then the form or color of the fixation target will serve to hold the patient's attention on the target much longer and will also prove less fatiguing to patient and examiner alike.

A useful application of this arrangement is that central relative scotoma can be easily and accurately detected. By revolving the disk, different colors and purer spectral colors than are otherwise obtainable at once appear in the central visual area without having come previously in the paracentral field of vision.

It is said that the use of the accommodation, three diopters at the 33 cm. radius perimeter, somewhat modifies the field of vision. The mirror fixation target, by being projected to approximately one meter, cuts the accommodation down to only about one diopter and should therefore give more accurate readings. However, the principal value of the above described fixation arrangement is that it provides a fixation target situated *beyond* the arc of the perimeter and one which can be readily altered in brightness, size, color or form. These changes create novelty and arouse interest and add greatly to the steadying effect of the increased distance. In a word all of the above-mentioned elements combine to produce a splendid target for maintaining steady fixation.

NOTE:

The lamp in the diagram is shown placed *above* the eye, with the mirror inclined upward. In the instrument, however, it is placed *below* the eye, being set in a housing attached to the bar supporting the chin rest, and the mirror is inclined downward. This is just for the sake of convenience. The arrangement will work equally well no matter where the lamp is placed. A smaller mirror can also be used with equally good results.

REFERENCE

1 Pascal, J. I.: Photoscope. Am. J. Ophth. 10:48-49, January 1927.

MASSACHUSETTS MEDICO-LEGAL SOCIETY

THE PLACE OF SCIENCE IN THE TREATMENT OF CRIMINALS AND IN THE PREVENTION OF CRIME*

BY FRANK LOVELAND, JR., A.M.†

THE past ten years have been years of great activity in the field of criminal justice. We have witnessed what has been popularly called a crime wave. The crime problem has been discussed at public gatherings, in the columns of our newspapers; in the pages of our magazines. Crime commissions have been organized; surveys made. Legislatures have enacted numerous laws with the hope of somehow eliminating the criminal. Enormous prisons have been erected, millions of dollars appropriated and spent. Now one wonders whether this public agitation, the innumerable investigations and the expenditure of millions will have decreased the commission of crimes, or have made the treatment of offenders more effective.

To analyze fairly our present modes of treatment or to speculate with any degree of intelligence on future trends in penology, it is desirable to glance briefly at the evolution of our philosophy and ways of dealing with criminals.

Going back to prehistoric and early historic times, might made right, physical strength was law, and the criminal was the weaker person who incurred the displeasure of the stronger. Later there gradually developed the rudiments of social organization and public opinion. Rules of conduct were established, but a violation of these rules or mores still resulted in vengeance and retribution of the wrongdoer. In the days of the Old Testament the law was retributive—"an eye for an eye and a tooth for a tooth". There was no philosophy behind this procedure; no reasoning was required. Its simplicity was its principal virtue.

Later there developed a program for handling the criminal based upon the theory of abstract justice. This theory is popularly represented by the classical figure of blindfolded Justice holding scales aloft. As Dr. Stearns once said, the blindfold not only keeps Justice from being swayed by emotion but also by intelligence. In this stage of development the important problem of criminal justice was to give the criminal

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acts their relative degree of seriousness and to parallel these acts with relatively severe punishments. Then there developed the idea that the offender should be so punished as to deter him and others from similar acts in the future. Whether this theory was a rationalization of the cruel and revolting punishments inflicted on offenders need not be discussed here. The fact remains that no one considered it of importance to learn whether the guillotine, the stretcher, the brand and the other innumerable devices of cruelty actually served to deter persons from crime.

Finally common decency in man revolted at this orgy of bloodshed and mutilation and there arose to replace these varied devices of torture the relatively humane jail. The jail, originating as a place of detention for persons awaiting trial, soon became an institution of more or less permanent custody. The offender was punished by the loss of his freedom and by incarceration in dark, ill-ventilated disease-ridden cells. If there existed a philosophy underlying the use of the jail, it was again that of punishment for the purpose of deterrence.

Then there evolved the relatively modern theory of reformation. This theory held that if you place the offender in an institution, treat him kindly, preach to him sufficiently, offer him an elementary education and perhaps instruct him in practices of a trade, he will leave the gates of the institution a reformed man. Dr. and Mrs. Sheldon Glueck's recent study of Five Hundred Massachusetts Reformatory Cases, which shows that approximately eighty per cent. of the young men who graduated from that institution could be considered failures five years after discharged from parole, indicates that something is wrong with this theory.

But now we are entering on a new era—an era of confusion, scepticism,—an era with the beginnings of scientific study. We are beginning to question the validity of the old hybrid system of penology, the roots of which extend back into ancient religious and philosophic abstractions. We have seen the gross failures of treatment based upon vengeance, retribution, abstract theories, inhuman attempts at deterrence and the general theory of reformation. Just as the scientific process has gradually entered the fields of business, education, physical and mental disease, it is slowly but very certainly entering that of criminal behavior and treatment.

The beginnings of science in this field can hardly be traced back more than fifty or sixty years. Then it was that Lombroso began his studies of the *persons* who committed criminal acts—a radical departure from the methods of the so-called classical school whose whole attention centered upon the criminal *acts* as divorced from the person. Whatever fault we may find with Lombroso's methods and theories, we must credit him with having focused attention on the individual.

With the introduction of science into the field of crime there arose the necessity of defining the purpose and aim of criminal justice. The old concept that the wrong done society by the commission of the crime should be neutralized by the punishment of the offender and the social balance thereby maintained has no place in science. On the contrary, modern criminal science takes as its starting point the principle of the protection of society. Any organization, then, that deals with the offender—whether it be the private social agency, the police, the court, probation system, or the prison must build upon this one underlying principle.

It is not contended, of course, that science can furnish us immediately with a complete and efficient system of social protection. Any material improvement in the effectiveness of methods of crime prevention and treatment must be based upon years of careful study. But it is maintained that if scientific method is patiently followed, it will lead to the gradual elimination of ineffectual methods and the substitution of more efficient penological practices.

Our present-day research in criminology is barely scratching the surface. The first step in the scientific process, namely, the collection of raw material (in this case all data which will assist us to understand the offender) has yet to be achieved. In the past, penal administrators have not considered it essential to obtain any but a few elementary facts concerning persons committed to their care. The primary purpose of the prison was custodial. In other words, the important duty of the prison system was to securely guard the offender until the expiration of his sentence. So the present-day criminologist is faced not only with a virgin field for study, but also with the necessity of spending much time in quarrying his raw material. The Glueck study already mentioned has been recognized as one of the first, if not the first comprehensive study of criminal treatment; and although it was limited to five hundred cases, three years of intensive field investigation were spent in collecting the data on which it was based.

We cannot, therefore, say that the present era in criminology and penology is a scientific one, but rather that it has scientific beginnings. Although the present is no time for dogmatic conclusions, it has come to be generally recognized as the persons responsible for criminal acts have been more intensively studied, that there is no single cause and that there can be no specific cure for crime; that its causes are many and varied. It follows, therefore, that each offender must be given individual study and that if treatment is to be effective, it must

deal with the special problems and needs of the individual. But whereas individualization in treatment is the essence of modern penologic theory, mass treatment is still modern penologic practice.

The first step in individualization, i.e., the separation of more or less homogeneous groups into the same institution and the establishment of several institutions for different groups, has been taken by a few states, notably Massachusetts, New York, and New Jersey. Although it cannot be said these institution units have been developed with a well-defined system of classification in view, the existing system is obviously superior to that in which all offenders are indiscriminately sentenced to the same or to the same type of institution.

In the early history of Massachusetts there was the house of correction for minor offenders and the State Prison for serious offenders. Both of these institutions still exist, but their populations are now dispersed among a dozen institutions. In 1876 the more promising women prisoners were removed from the various houses of correction and placed in a reformatory for women, where a specialized institution and staff could give more individualized treatment. In 1884 a reformatory for men was established for the purpose of segregating the younger and less experienced offenders from the older, thereby eliminating contamination and allowing reformative influences a more fertile field for operation. The State Farm, which had begun as an almshouse gradually evolved into a penal institution, first taking misdemeanants and drunkenness offenders. Later the criminal insane were segregated in one department at the State Farm. Early in the twentieth century the theory was advanced that there were a number of persons in the various penal and correctional institutions and in the schools for feebleminded who were so mentally deficient and criminally inclined that they should be separated as a group for treatment and custodial care. And so in 1922 a department for male defective delinquents was established at State Farm followed in 1925 by a department for female defective delinquents. In the one institution known as the State Farm there are five separate departments, namely, the men's prison, the women's prison, the hospital for the criminal insane, the department for male defective delinquents, and the department for female defective delinquents, not to mention a semi-separated drug addiction department.

In 1907 the Prison Camp and Hospital at Rutland was established. This institution was to have two purposes, first to provide a place where all inmates with infectious diseases (more especially those with tuberculosis) could be segregated; and the second, an institution that could be considered an honor camp where the more trustworthy inmates in other state and county institutions could be sent for the purpose of reclaiming land.

The latest and most interesting development in the evolution of the Massachusetts penal system is the Prison Colony now being constructed at Norfolk. For years it has been recognized that the State Prison at Charlestown, the first buildings of which were erected in 1805, was antiquated and belonged to a penologic era irrevocably past. In 1927 the Norfolk institution was begun and is now well under way. But Norfolk is not to be just another prison. It is the one outstanding attempt in this country to utilize the principles of modern penology in the development of a correctional institution. Instead of building for mass methods, the institution's capacity is limited to 1200 persons as contrasted to 3000 to 5000 capacity prisons recently constructed in other states. Norfolk is furthermore constructed in small units. Each building will house 150 inmates, but since the building is separated into three units, the classification unit is actually fifty persons. The population will be so classified as to allow group specialization in treatment. Every unit will be in charge of an officer of high qualifications, whose duty it will be to know the problems of each inmate under his supervision and to assist in carrying out a definite program in each case. Vocational and educational training are to be correlated. Industries will be as varied as possible and will be operated by the methods and with the machinery found in outside industry. Whereas most penal institutions today are designed and their programs organized to meet the security needs of the ten per cent who compose the more dangerous and fractious element, this institution plans to offer security where it is needed and give an opportunity for the acceptance of responsibility and for social growth where that is indicated. But to describe the Norfolk Colony is too extensive a task for this paper. It is sufficient to say that this project is being watched with interest the world over, and that its completion will be a landmark in the newer penology.

I have briefly mentioned the facilities for classification of prisoners to be found in Massachusetts. These various institutions and departments are a necessary basis upon which to build an individualized program of treatment. With the exception of scattered and isolated instances, however, we cannot say that our inmates are dealt with according to their individual needs. Rather than to follow up this heretical statement here, I should like to consider the subject along with the plans of the newly organized Division of Research.

In the Spring of 1930 the Massachusetts General Assembly created a Division of Research for the Prevention of Crime in the Department

of Correction and provided a small appropriation for its maintenance. The persons responsible for the creation of this division believe that the social sciences have something of value to contribute to the administration of criminal justice and that evaluation of social data which is and which can be obtained through the penal system will assist in formulating a program for the prevention of crime. The division is still in its formative stage after only two months of existence, but a brief discussion of its purposes and plans as seen at this time may be of some interest.

As has already been mentioned, the factual basis for research in this field is non-existent. Although Massachusetts unquestionably has the best criminal statistics of any state in the union, these statistics deal with a limited number of objective items and fail to give us much information concerning the kind of people who commit crime or the factors which may have contributed to the commission of crime. Not only is this information not to be found in our statistics; it is not learned at any stage of treatment, and is, therefore, not to be found in the files of the institutions or at the Department of Correction. When the prison is considered as primarily an institution for custodial care, there is obviously little practical use in learning much about the inmate. So although the past few years have seen an increasing amount of social data obtained, the prison case history cannot compare with that of a good social agency or hospital in the completeness and accuracy of its information. The division of research is, therefore, handicapped in the making of studies of scientific value.

But the very absence of these data presents a challenge and a field of endeavor that is no less important than studies in crime prevention. As its initial project, therefore, the division will assist every state penal and correctional institution in the development of its case work to a high professional plane. This is to be done by the creation in each institution of a department or clinic which will make an intensive study of the life history of every person committed. Such departments have already been established at the State Prison and the Prison Colony at Norfolk, while the Reformatory for Women at Framingham has for many years had this service. The clinic at State Prison has been called by Dr. Stearns the personnel department. So far the word "personnel" has not received the stigma associated with the terms "social work" and "psychiatry" among inmates.

The organization consists of a director, a part-time psychiatrist, a part-time psychologist, three male and two female social workers. Every inmate is examined by the psychiatrist, and although psychometric examinations are not given as a matter of routine, they are made when their need is indicated.

The primary duty of the department is the preparation of case analyses upon which institutional treatment, and later, community supervision may be based. The inmate is interviewed immediately upon admission, and his own story of his life and his explanation of his offense is learned. A field investigation is then made in which the family, the school, the employers, social agencies, the court, criminal identification bureaus and other departments and persons are contacted. The prison physician, of course, examines each inmate and contributes a medical diagnosis. After all relevant data have been obtained and developed into a chronologic life history by the worker, the preliminary case history is given to the psychiatrist for his use in arriving at a diagnosis. The director of the personnel department, acting in the capacity of a clinical criminologist, interviews the inmate and then the case is presented in staff conference at which are present, in addition to the members of the personnel department, the Commissioner of Correction, the Warden, and the Director of the Division of Research. After the investigation of the case and the preparation of the case history is minutely criticized in staff conference, an attempt is made to arrive at a social diagnosis and a tentative program of treatment.

It is clearly recognized that these diagnoses are of questionable scientific accuracy and value, and also that we must carefully guard against dogmatic conclusions. But we are of the opinion that to make a judgment based upon all available data is better penologic practice than to allow a man to be committed, drift through the institution and be released without having made an attempt to define his problem and to suggest needed treatment. It is hoped that as years pass, as these diagnoses can be checked by future events and as our technique of study is perfected, something approaching scientific diagnosis may be possible.

The question may be asked what practical and immediate value these studies have and whether there are any decisions that can be made more intelligently with than without them. It is true that an institution as old as the Massachusetts State Prison offers fewer facilities for individualized treatment than could be desired. Nevertheless, this information can be used as a basis for transfer of persons from State Prison to any other state penal or correctional institutions. The Commissioner of Correction, through the power of transfer from one institution to another, is given the legal means of classifying inmates according to the institution best fitted to their needs. The development of the Prison Colony at Norfolk has presented a serious problem in the selection of men for transfer from State Prison. This problem is being met by

the Personnel Department, and the Commissioner has provided that all transfer recommendations pass through this department. State Prison is now badly overcrowded, and admissions during the coming winter will probably cause a serious emergency unless the population can be kept down to a manageable number through proper transfer. It is our hope that through intelligent study and classification of inmates these transfers may be justified as treatment measures as well as from the standpoint of administrative necessity.

In addition to its use for purposes of transfer, the case history can be used for classification within the institution and for assignment to work and to school classes. It is also of unquestionable value in explaining conduct difficulties.

Although the case history would be justified if it were used only to assist the prison officials in outlining a program for the inmate, its use does not stop there. The Board of Parole must sooner or later determine when every offender (with the exception of those sentenced for life) is to be returned to society. A parole summary is prepared on each case in which is included the social history of the parole applicant, the story of the offense, his prior criminal record, the medical and psychiatric diagnoses, his history while in the institution, a statement of his plans for the future, and a prognosis based upon all of these items.

The case history again comes into use by the parole officer who thereby becomes better acquainted with the man's problems and weaknesses and may plan a supervision or treatment program accordingly.

We hope, however, that the use of this life history with its accompanying analysis can be carried a step further. To one who has studied the process of criminal treatment from the juvenile court through to the "big house" or State Prison, one of the most outstanding examples of waste appears to be in the collection of social information. An investigation is made of the offender as a child when he appears before the juvenile court. Possibly the child and its family have already been known to social agencies where case records are to be found. The young offender is later sent to a juvenile institution where another investigation is made and another case record written. Later he is released and comes before a district court where a fourth investigation report is compiled. If he goes to the Reformatory, a fifth case history is written; and if he is summoned into superior court after release, a sixth is made. If committed to a house of correction, the Division of Examination of Prisoners of the Department of Mental Diseases makes a seventh study. If he continues to violate the law, additional studies, generally very brief and incomplete, continue to be made and very little or no attention is given to the numerous previous investigations, despite the fact that every investigative department is badly overburdened. The reason generally given for not using the information found in previously compiled case histories is that the information cannot be depended upon. What truth there is in this accusation need not be discussed here except to say that the Division of Examination of Prisoners at least prepares a case history of unusual accuracy and utility. It is obvious, nevertheless, that there is urgent need for a clearing house for social and psychiatric information concerning criminals—a clearing house comparable to the bureau of identification with its finger-print system in the field of criminal records. Although the creation of such a bureau covering all offenders appearing before the courts may be a vision of the distant future, the prospect of a bureau covering all cases committed to state institutions is a matter of the very immediate future. It will be our aim to avoid the objections now raised against the use of previously prepared case records by the development of complete, accurate and concise histories. These will be available to all courts and other government agencies by request to the Department of Correction.

In the above discussion, I have perhaps given the impression that the preparation of a case study shortly after the arrival of the inmate is the personnel department's sole duty, which is not the case. We are developing methods and records by which we may watch the inmate's progress through the institution. All problem cases at least will be reviewed at stated intervals, and it is hoped that all cases may be given this consideration. Staff members of the department will have occasional talks with the offender during his stay, both for the purpose of intensive personality study and for the therapeutic effect the social contact may have upon the individual. In short, while the primary duties of the department are descriptive, analytical and diagnostic, the inmate will be given whatever assistance in meeting his problems that a person trained in the social sciences is capable of giving.

The prison clinic will also serve as a training center for persons who desire to enter the field of penology on a professional basis. From the Division of Research appropriation there have already been provided stipends of five hundred dollars per annum for two clinical interneships or fellowships which will be granted students of outstanding ability, who desire to supplement their academic training with clinical experience. I believe this provision, the credit for which belongs to Dr. Stearns, will go far to bridge the gap which now exists between the student and the penologist or prison administrator. Dur-

ing the past two months, I have interviewed approximately twenty-five college graduates, many of them capable and with good academic training who desired positions in the Division of Research or in the Personnel Department, but the absence of experience has made it impossible to place them in positions of responsibility.

Foundations such as the Bureau of Social Hygiene are beginning to recognize the importance of this training. Last year the Bureau created two fellowships of one thousand dollars each for this purpose. In addition to offering the opportunity of training to these students, the personnel department has accepted a limited number of volunteer workers from the universities in and near Boston. The Warden of State Prison in a recent statement concerning this work said that "while the privilege continues to be safeguarded by proper selections, it should be possible to continue to offer such training facilities to the mutual advantage of the institution and of the students".

There will be those who are sceptical of what can be accomplished by the plan for the study of offenders and for the professionalization of penologic work outlined above. It is not contended that the study of the individual alone will reveal the panacea for our penal ills. Nevertheless, modern penology has as its basis the one fundamental principle of individualization of treatment. Individualized treatment depends upon accurate diagnosis and this in turn depends upon a complete social history and description of symptoms. A justifiable criticism of the existing penal organization is that sharp and delicate instruments of socialization and protection are being used without a precise knowledge of the condition to be remedied. It seems logical, therefore, that the study of the offender should furnish the basis for progress in penology and that advance in this field can be no more rapid than the development of methods and facilities for such study.

When clinics have been established in the various state penal and correctional institutions, there will gradually accumulate a store of research material that will be a valuable source for criminologic studies. If criminology is to become a science, there must be a constant accumulation of precise data. If future treatment of the offender is to be effective, we must not only understand the people with whom we are dealing, but must know how these people react to various stimuli, or more concretely to the reformative or treatment processes to which they are subjected. The prison clinic has a distinct contribution to make to the field of criminology. It has as its material the end product of a criminal career; it has sufficient time to study the offenders' life history, to observe the effect of institution and parole treatment. Here is a field of research practically untouched, and we hope that the beginning now being made in Massachusetts may result a few years hence in a substantial contribution to the subject of crime prevention and treatment.

DR. NANCY E. (TALBOT) CLARK

The Second Woman Graduate in Medicine To Practice in Boston

BY FREDERICK C. WAITE, PH.D.*

THE distinction of being the only woman graduate in medicine practicing in Boston was held by Dr. Martha A. Sawin for less than three months, in early 1852, when came to Boston Dr. Nancy E. Clark, who had, on March 3, 1852, received the degree of doctor of medicine at the Cleveland Medical College, the Medical Department of Western Reserve College, now Western Reserve University. Dr. Clark thus became the second woman graduate of medicine to practice in Boston or New England.

She was also the second woman to graduate from a recognized regular medical school. While fully twenty women received the degree of doctor of medicine between January 23, 1849, when Miss Elizabeth Blackwell was graduated at Geneva, and March 3, 1852, when Mrs. Nancy E. Clark was graduated at Cleveland, yet no one of the four institutions graduating these twenty women was a recognized regular medical school. The Central Medical College, the Syracuse Medical College and the Western College of Homeopathic Medicine were all sectarian schools, while the Female Medical College of Philadelphia in its early years was considered irregular not so much because it was a school for women only, as for the reason that the teaching of some of its professors was held to be tainted with eclecticism.

Nancy Elizabeth Talbot, daughter of Josiah and Mary (Richards) Talbot, was born at Stoughtonham (Sharon) Mass. on May 22, 1825. She was the seventh child of a family of five boys and five girls and a descendant in the fifth generation of Peter Talbot, a descendant of the Earl of Shrewsbury, who came from Lancashire, England, to Dorchester, Mass. before 1675.

It is evident that the family had intellectual ability and received educational advantages. The eldest son, Josiah Warren Talbot, became a Universalist clergyman, after being headmaster of the Dedham schools; two of the older sisters were school teachers; Nancy became a physician; and a younger brother, Israel Tisdale Talbot,

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graduated at the Homeopathic Medical College of Philadelphia in 1853 and at Harvard Medical College in 1854. He was internationally prominent in homeopathy, an editor of a medical journal, one of the founders of the Massachusetts Homeopathic Hospital in 1870 and of the Medical Department of Boston University in 1873, on the faculty of which he served for twenty-six years, as professor of surgery for twenty-one years and as dean from 1873 until his death in 1899. To find in a family of ten, one of whom died in childhood, a clergyman, two graduates in medicine and two teachers indicates family ability.

After attending the Sharon Academy, at the age of sixteen Nancy Talbot was teaching in the South Dedham (now Norwood), Mass. schools, where her brother and two sisters had preceded her. Daguerreotypes taken when she was nineteen show features indicating intelligence and a rare beauty of face and figure which remained throughout her life.

At twenty years of age, in 1845, she was married at Sharon to Champion W. Clark "of Philadelphia". He was a dentist, but evidence is lacking that he was a graduate in either dentistry or medicine. They went to Baltimore, where the city directory of 1847 shows him listed as a dentist with residence and office at 10 Penn St. In 1847 a daughter was born, who died early in 1848. Then, during the serious illness of Mrs. Clark, her husband died of typhoid fever on March 6, 1848, in his 27th year. This young woman of twenty-three, suffering serious illness and double domestic sorrow, now showed her ambitious character.

The entrance of Elizabeth Blackwell into a medical school for men had caused much public discussion. Mrs. Clark had as a friend one she considered as a remarkable woman. This elderly woman pointed out how helpful Mrs. Clark could be to women if she entered medicine, and due primarily to this counsel she decided on that career. This resembles the influence that turned Elizabeth Blackwell to medicine.

How Mrs. Clark came to select the Cleveland Medical College is not known. An intriguing conjecture is that since the wife of the dean, Dr. John Delamater, came from near Sharon there was a relationship with the Talbot family.

The records of that medical faculty show discussion as to admission of women and decision in the spring of 1850 not to admit them, but the women had influential advocates in the two strong men of the faculty, Dr. John Delamater, the dean, and Dr. Jared Potter Kirtland, the professor of medicine. In November, 1850, Mrs. Nancy E. Clark was admitted as the first woman student of the school and with the dean listed as her preceptor.

Several years later one of the faculty is quoted as saying that it was his understanding that Mrs. Clark's original purpose was not to practice but to teach physiology and hygiene. Early in 1850 the Massachusetts legislature by law required the teaching of physiology and hygiene in public schools. Women could get instruction in these subjects best in the medical schools and this was one of the arguments for admission of women to medical schools. Many women graduates in medicine entered the career of teaching these subjects.

During the two years of Mrs. Clark's attendance there was continual discussion in the medical faculty at Cleveland and finally it was decided to accept no more women. This policy was reversed a year later when Emily Blackwell was admitted, and the next year four more women, including Marie E. Zahrzewska, were admitted. All five of these women were graduated and each had a long, successful professional career.

The decision to admit no more women after Mrs. Clark led to an incident so naïve that it merits record. From the commencement platform on March 3, 1852, when Mrs. Nancy E. Clark received the first degree conferred on a woman by the Cleveland Medical College, the chairman of the board of censors read the following notice which was published in the local newspapers the next day:—

> "Among the graduates is Mrs. Nancy E. Clarke of Sharon, Mass., a lady who has, during the past two sessions, commanded the respect of Instructors and members of classes by her lady-like deportment and faithful intelligent attention to her duties as a Medical Student.
>
> We have felt constrained thus publicly to express our appreciation of this lady's deportment lest an inference derogatory to her character should be drawn from the fact, which has been extensively published, that the Faculty deems it inexpedient, hereafter, to receive ladies as Medical Students."

Dr. Clark missed by three days the distinction of being the first woman to receive the medical degree west of the Allegheny mountains, since on February 28, 1852 the Western College of Homeopathic Medicine in Cleveland had conferred the degree of doctor of medicine on Miss Helen Cook, of New York, the first woman graduate in homeopathy.

Dr. Clark immediately returned to Boston and in the city directory published in April, 1852, she appears listed as a physician at 4 Bulfinch Place. In 1853 her location was changed to 49 Hancock Street, where it continued through the directory of 1856 and then is no longer found.

Dr. Clark was not satisfied with being the only woman physician in Boston with a degree from a recognized regular medical school, but had ambition to attain the highest professional status, which was so well understood that it was rec-

ognized by a separate classification in the city directory. This was membership in the Massachusetts Medical Society. Within ten months from her locating in Boston she applied for membership in that society.

It is highly probable that she was not only the first woman to apply to that society for membership but also the first woman to apply to any state medical society of the regular school of practice for membership, because at that date she and Dr. Elizabeth Blackwell were the only women in the United States who had graduated from a recognized regular medical school.

The records of the Board of Censors of the Suffolk district of January 26, 1853 show the receipt of the application and credentials of Dr. Clark.

The records of February 1, 1853 show the presentation to the authorities of the society of the following communication:

> "To the Counsellors of the Massachusetts Medical Society
>
> Gentlemen:—At a meeting of the Board of Censors of the Massachusetts Medical Society held at the house of Dr. Morrill in this city, on Wednesday the 26th of January 1853, Mrs. Nancy E. Clark, M.D. a graduate of the Medical Department of Western Reserve College, personally appeared before the Board, and applied for admission to the Society. Her credentials were satisfactory to the Board. She is of the required age, has fulfilled the conditions which the Society requires for membership and as far as attainments are concerned appears to be qualified to become a Fellow of the Society. The application is a novel one, and as the present Board of Censors believe, of a character never contemplated by the founders of the Society. They are therefore unwilling to assume, themselves, the responsibility of deciding the whole question for the Society.
>
> The Acts of Incorporation, By-Laws and Orders of the Massachusetts Medical Society are at least silent with regard to the admission of females into that body. It appears, moreover, that the Censors are obliged to examine all, without regard to difference of sex who apply for admission to the Society, and who have satisfied certain conditions; and also that each Censor is liable individually to a fine whose maximum is $400, for refusing to examine a candidate that has satisfied these conditions, or to admit him if he passes a satisfactory examination.
>
> Under these circumstances the Board of Censors are unwilling to assume the above mentioned responsibility and to render themselves liable to a fine of $2000 by refusing the application of Mrs. Nancy E. Clark. By a unanimous vote, they have referred the matter to your body and respectfully ask for instructions how to proceed."

The records of the Board of Censors of February 5, 1853 show receipt of the following communication from the Counsellors of the Society:—

> "To the Censors at Large of the Massachusetts Medical Society: Gentlemen: At a meeting of the Counsellors held in Boston February 2, 1853 the following resolution was passed; viz. That the Censors be instructed that their duty requires them to examine male candidates only for membership and that the Massachusetts Medical Society will assume any responsibility or expense which the Censors may incur in the execution of this vote."

Then the records show that "In accordance with the instructions of the Councilors it was voted unanimously not to license Mrs. Nancy E. Clark."

Here in Boston in January, 1853, by the application of Dr. Nancy Clark, began a controversy as to admission of women to medical societies that continued for more than thirty years. In Pennsylvania, in 1859, state society members were prohibited, on pain of expulsion, from consulting with a woman physician, or with a male physician who taught in a woman's medical college. Women physicians were classed with Thomsonians, eclectics, and homeopaths. Not until 1871 did any regular state medical society admit women as members, and only when the American Medical Association admitted a woman delegate in 1876 did the controversy diminish.

The honor of membership in the Massachusetts Medical Society to which Dr. Nancy Clark aspired in 1853 was not attained by any woman physician until 1881.

In spite of her failure to gain the coveted honor, Dr. Clark acquired a good practice among a desirable clientele. This is the recorded testimony not only of herself but of both her men and her women contemporaries.

Now her ambition to excel sought another avenue. Dr. Elizabeth Blackwell had gained much by a year in the hospitals of Paris and London, and Dr. Clark decided to follow her example. In August, 1854, at the age of twenty-nine years, with her brother, Dr. I. Tisdale Talbot, who had just graduated from Harvard Medical School with his second M.D. degree at the age of twenty-four years, Dr. Clark sailed for Paris for a year's work and study at La Maternité. On the ship going over she made an acquaintanceship which was destined to change her future career, for she met Amos Binney, Jr., of Boston, whose daughter and young wife had died the previous month.

Dr. Clark studied in Paris for nearly a year and then returned to her practice in Boston. She

was the second American woman practicing physician to go to Europe for study. Dr. Emmeline Cleveland of Philadelphia went about this time but returned to teach. Dr. Emily Blackwell followed Dr. Clark four months later.

Dr. Clark was the only woman physician in Boston who had been abroad for study. She was certainly the best trained woman physician in Boston at this time and a woman of much ability and charm and at thirty years of age a successful professional career seemed probable, but the meeting on the ship beckoned more strongly and a year after her return she was married in Boston on July 6, 1856, to Amos Binney, Jr., and ceased medical practice.

Amos Binney, Jr. had left Harvard College in 1847 at the end of his first year because of ill health, and finished his education with private tutors in Europe. He was the son of Dr. Amos Binney (1803-1847), A.B. 1821, Brown University, M.D. 1826, Harvard Medical School, who was one of the founders of the Boston Society of Natural History, and of the American Society of Geologists and Naturalists, the predecessor of the American Society for the Advancement of Science, a member of many scientific societies, a scientific writer of merit, a member of the legislature, and prominent in Boston banking and business.

After the marriage of Dr. Nancy Clark to Amos Binney, Jr. they lived in Roxbury, Mass. At the outbreak of the Civil War, Mr. Binney was commissioned in the Paymaster's department, rising to be Lieutenant Colonel. He was stationed at Baltimore from 1861-65 and at Norfolk, Virginia in 1866. From 1867-72 they lived in New York City. In 1872 they returned to Boston for five years and then went to Newport, Rhode Island, where Col. Binney died March 11, 1880 at the age of 50 years.

Mrs. Binney lived in Newport, Europe, Newport, Boston, Philadelphia, New York, and finally Haverford, Pennsylvania, until her death there July 28, 1901 at the age of 76 years.

To Amos and Nancy Talbot Clark Binney were born six children. The older son, Amos, graduated at Harvard College in 1879 and at Massachusetts Institute of Technology in 1881. He was a chemist and later in business in Boston until his death in 1912. The two older daughters died in childhood. The two younger daughters received a good education, later married and are now living in Philadelphia. The younger son, Harold, graduated at Massachusetts Institute of Technology, served several years as assistant commissioner of the United States Patent Office, then graduated in law at New York University and practiced patent law in New York City with success until his death in 1914.

In 1874 Dr. Nancy Clark Binney again entered medical practice with philanthropic motives. She opened an office for consultation and a free dispensary for women on Charles Street near Pinckney Street, Boston. Thus did this well-to-do and cultured woman with social position show that her desire to help women, which led her into medicine twenty-five years before, had not died out. She continued this charitable service for more than a year.

It is of interest to note that although Dr. I. Tisdale Talbot again took up homeopathy about 1870 and became a national leader in it, his sister, Dr. Nancy Clark Binney, never had any sympathy with sectarian medicine. It seems probable that in her two years in Cleveland she became permanently armed against it. Those were the first two years of the homeopathic school in Cleveland, which then was the center of the conflict with regular medicine, and Dr. John Delamater, who was Dr. Clark's preceptor, as dean of the regular school, handled homeopathy without gloves.

The statement has, at times, been made that the early women physicians were not of the highest class of women of their period. The career of Dr. Nancy Talbot Clark Binney refutes any such generalization. She came from a colonial family of high intellectual capability. In her first marriage she came in contact with dentistry, then closely affiliated with medicine. At the age of twenty-three domestic tragedy did not conquer her but instead aroused her ambition for service. She was the second woman graduated from a recognized regular medical school. She was the second woman graduate of medicine to enter practice in New England; she was the first woman to apply for membership in a state medical society. She was the second American woman graduate to go to Europe to study.

Leaving a medical career which gave high promise to enter domestic life, her ability and ambition still led her on. She joined a family prominent in science and public service and reared a family whose members took high standing in their respective communities.

She was interested in medicine, in domesticity, in philanthropy. A woman of education, of capability, of business ability, of culture and with personal charm, she exemplifies the best in the career of women in the medical profession and in American womanhood.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17511

DYSPNEA FOR SIX DAYS

MEDICAL DEPARTMENT

First admission. A fifteen year old messenger boy came to the Emergency Ward March 22 complaining of shortness of breath of six days' duration. The history was obtained through his mother, some of whose statements were contradicted by the boy's brother.

Six weeks before admission the school nurse told the mother that the boy should not do any heavy lifting or take strenuous exercise. The mother said she had supposed the boy was in perfect health. His brother however said later that for three years the boy had been pale, apathetic and easily winded. Two weeks before admission he bought a bicycle and went to work as a messenger boy. He rode his bicycle all day long. After the first day or two he began to complain of difficulty in getting his breath and at times of a slight feeling of faintness. Six days before admission after a full day's work he came in completely exhausted and gasping. After a light dinner he was able to go upstairs to his room only with great difficulty. He could not sleep on his left side and made a gasping noise while he slept. He used only one pillow, but told his mother he would sleep better in an armchair. This, however, he did not try. The next day he felt much better and rode his bicycle as before, but felt ill again that night and stopped work the following day. Two days before admission, after playing out on the streets most of the day, he came home more out of breath than before. He tried to drink a little milk but vomited black material soon afterward. He coughed, looked pale and gasped. The day before admission he tried to do another kind of work. The mother brought him to the hospital in an automobile. He walked into the Emergency Ward with difficulty.

His father died of heart failure at forty after an illness of two years which followed a fall. A married sister had a defective heart valve but had no symptoms.

The past history is negative except for measles in childhood. There was no history of rheumatic fever, sore throat or tonsillitis. For the past month he had had a slight cold in the head and cough. He left school six weeks before admission because he did not like it.

Clinical examination showed a fairly well developed, lanky boy, cyanotic, lying flat in bed with shallow and fairly rapid breathing. The apex impulse of the heart was not seen or felt. The left border of dullness was 10.5 centimeters to the left of midsternum, 3.5 centimeters outside the midclavicular line. The right border was 3 centimeters from midsternum, the supracardiac dullness 4. There was a loud blowing systolic murmur heard over the whole precordia and in the axilla, best heard at the apex. There was very marked gallop rhythm. No diastolic was heard. The blood pressure was 110/90. The lungs were clear front and back. On the right was a dull tender area extending 2 fingerbreadths below the costal margin. No edge was felt. The extremities, pupils and reflexes were normal. There was no edema.

The amount of urine is not recorded. The specific gravity was 1.015 to 1.036. There was the slightest possible trace of albumin at two of six examinations. The sediment showed 3 to 6 leukocytes at three of four examinations, rare red cells once. The renal function was 15 to 70 per cent. Blood examination showed 18,000 to 6,400 white cells, 80 per cent polynuclears, hemoglobin 70 per cent, reds 4,230,000. Smear was normal. A Hinton test was negative. Two throat cultures were negative for Klebs-Loeffler bacilli and streptococci.

The temperature was 100.9° to 98° for the first six days, afterwards normal. The pulse was 120 to 174 for the first two days, afterwards 73 to 120. After March 27 it was not above 108. The respirations were 23 to 44 until April 11, afterwards normal.

X-ray examination showed the heart generally enlarged, particularly across the base, prominent in the region of the pulmonary conus. There was evidence of dilatation of the auricles.

On March 23 the heart rate was rapid all day, 140 to 150 and regular. March 24 an electrocardiogram showed normal rhythm, rate 130, rather low voltage, slightly inverted T_1, flat T_2 and T_3. March 25 a cardiac consultant noted that the gallop rhythm was from a loud third sound. He did not believe that flutter was present. With rest in bed, salicylates and morphine in the evening the rate came down to 80-90 on March 25 with consequent subjective improvement. There was no more cyanosis or vomiting and the patient ate well. That day the left border of dullness was found to be 9 centimeters from midsternum. There was a thrill. March 27 there was mild follicular tonsillitis with a temperature of 100° and bilateral glands. By advice of the cardiac consultant the patient was fully digitalized. On April 2 the heart was slower and the patient was feeling lively. The white blood count came down to normal slowly. On April 30 the tonsils and adenoids were removed at the Eye and Ear In-

firmary under ether. On May 9 the patient was discharged to a City Home for several months' rest.

History of interval. He remained in the Home for four weeks, in bed all but three or four hours of the day. He was given digitalis and improved steadily. He then went to his sister's home, being up four or five hours a day. He then went to work in a furniture store, at first sweeping and dusting. Later he was required to lift heavy furniture. After two weeks he left the place and went to work in a cracker factory, where he had to work fairly hard and was exposed to the heat of the ovens and to escaping gas. Several times he developed rather severe frontal headaches, relieved by going out into the fresh air. Once he vomited, he thought because of eating too many crackers. During the latter part of February for two or three nights he vomited after eating his supper. At the advice of a Massachusetts General Hospital social worker he left this place and was sent back to the City Home, where he remained until his readmission. He felt well until four weeks before readmission, when he noticed soreness in the epigastric region on pressure and on walking about, having no relation to food and relieved by lying down and at times by defecation. The soreness persisted to admission. For the first four days after he noticed this he vomited almost all the food he ate. Following the onset of this soreness his bowels were markedly constipated. He had urinated two or three times at night and had been in bed except for about four hours a day. During the year's interval he had had no pains in the chest, dyspnea, edema, colds or sore throats, and had not had to increase the number of pillows he used. For the past week however he had noticed palpitation on exertion. He had unproductive cough perhaps twice a day. His appetite had been very good. He had taken digitalis regularly for two months.

The history was thought to be only fairly reliable.

Second admission, April 7, eleven months after his previous discharge.

Clinical examination showed a well developed and nourished boy with pale, slightly yellowish skin and moderate cyanosis of the lips, nose, ears, chin and nipples. The sclerae were slightly yellow. The thyroid was palpable. The heart was enlarged to the left and right. The apex impulse was seen and felt in the fifth space 9.5 centimeters to the left, coinciding with the left border of dullness 2 centimeters outside the midclavicular line. The right border was 5 centimeters to the right of midsternum. The supracardiac dullness was 5.5. The action was regular, forceful and very rapid, 140. There was good shift of apex beat with change of position. No Broadbent's sign. There was a well marked protodiastolic gallop heard best above and to the side of the apex impulse. A blowing systolic murmur was heard over the precordium, maximum at the apex, changing in character as one listened. No diastolic murmurs were heard. The rapid rate and loud third sound tended to prevent careful interpretation of the several components. The blood pressure was 105/80 to 82/65. April 29 an electrocardiogram showed sino-auricular tachycardia, rate 120, slightly slurred QRS, low voltage, low T_1, slightly inverted T_2 and T_3. The chest was barrel shaped and prominent over the precordium. Expansion was fair. A few râles were heard over the right base. The liver was 3 fingerbreadths below the costal margin, slightly tender. The edge was felt. There was no edema. The left pupil was greater than the right. Otherwise the pupils and reflexes were normal. The fundi showed moderate venous congestion.

The amount of urine was 25 to 80 ounces. The specific gravity was 1.016 to 1.030. There was the slightest possible trace to a trace of albumin at all of 14 examinations, 1 to occasional leukocytes at 7 of 13 sediment examinations, 1 to occasional red cells at 3. Blood examination showed 8, 100 to 13,400 white cells, 65 per cent polynuclears, hemoglobin 70 per cent, reds 5,590,000. The platelets were diminished. Otherwise the smear was normal. A Hinton test was negative. The non-protein nitrogen was 37 milligrams.

The chart for the first two weeks is missing. After April 20 the temperature was 98° to 100.6° with a terminal rise to 105°. The pulse was 102 to 145 with 5 to 10 dropped beats. The respirations were 22 to 37 with a terminal increase to 47.

X-ray examination showed the transverse diameter of the heart definitely increased both to the right and the left; right 6.2 centimeters, left 10.1, total transverse 16.3, length 17.4, base 13.5, great vessels 5, chest 24.5. The supracardiac shadow remained about the same. The shape of the heart shadow was now of the water bottle type, the curves somewhat obliterated. All the lung markings were increased, more at the hilus than at the periphery.

April 12 it was noted that the chest expansion was very poor even with the accessory muscles. The dyspnea was peculiar, two or three quick respirations, then a period during which he seemed to rest as if the effort were very tiring. April 14 the heart consultant who saw him at the first admission repeated essentially his previous opinion. He suggested that salicylates and salyrgan might be worth trying. April 15 the patient seemed better, but the pulse was still 120 in spite of digitalis. April 19 he vomited. The digitalis was withdrawn. He looked sick and tired. By advice of a second cardiologist two doses of 50 per cent glucose were

given intravenously. They were without perceptible effect. May 1 the patient was vomiting a good deal and was distressed by limitation of fluids. Another electrocardiogram May 1 showed sino-auricular tachycardia, rate 110, low voltage, QRS not higher than + 2 millimeters in any one lead, flat T_1, slightly inverted T_2 and T_3. He had only one paroxysmal attack that day. He continued in about the same condition, with less vomiting. Edema rapidly increased in the legs. He was given salyrgan, which produced slight diuresis. May 8 he had considerable cough. The next day there was generalized cyanosis, more marked in the lower half of the body. There was marked sacral edema. The heart rate was over 150. There were râles at the bases. May 10 there was a peculiar grating, metallic sound over the heart transmitted to the right axillary line, somewhat characteristic of a pericardial friction rub. Early the following morning the patient died.

Clinical Discussion

BY RICHARD C. CABOT, M.D.,
GEORGE W. HOLMES, M.D., AND
MAURICE FREMONT-SMITH, M.D.

NOTES ON THE HISTORY

Dr. Cabot: The fact that the boy felt well enough the day after the attack two weeks before admission to ride his bicycle again all day is very astonishing.

I suppose the school nurse probably got her ideas from the school physician, who probably found some trouble, presumably heart trouble, though of course asthmatic trouble has to be thought of as a bare possibility. I do not think of any other disease that could give a history like this, an apparently afebrile, dyspneic illness of short duration in a small boy. My guess is that it is a rheumatic heart in spite of the lack of evidence of rheumatism.

You notice how very small the difference is between the systolic and the diastolic blood pressure.

It is extraordinary that the lungs were clear. That is the record. With so much dyspnea we certainly expect dullness at the bases and râles as evidences of passive congestion.

It is striking that there is no edema.

That is a normal kidney so far as we can tell from the urine examination.

The striking thing about the blood examination is that there is no anemia, which if this were acute endocarditis might already have developed.

What are we going to say our diagnosis is at the end of the history? It is a very queer state of things—so much dyspnea, so little evidence of passive congestion. The boy is cyanotic, almost orthopneic, and there is no evidence of fever. I think we must say heart trouble, but it certainly is very queer.

Dr. Holmes: The striking thing in the chest film taken at the first admission is the tremendous enlargement of the heart. There is no such increase in the supracardiac shadow as would be expected if there were fluid in the pericardium. We did get badly misled in one case recently where there was a tremendously enlarged heart and yet no enlargement in the region of the great vessels. It turned out to be tuberculosis of the pericardium with adhesions about the great vessels, preventing the fluid from reaching this area. There are many things one would like to know that are not given here. The character of the pulsation would be of value in deciding whether it was an enlarged heart or pericarditis with fluid. The various chambers of the heart on the film are not very clear, a point which would be a little in favor of pericardial adhesions. I do not think there is anything in the film to suggest fluid in the pericardium. With fluid the enlargement usually is as great to the right as to the left. This heart is more prominent to the left. It looks like a generally enlarged heart, possibly with some adhesions. We have however very little evidence of adhesions.

Dr. Cabot: Are you pretty sure that is not a big pericardial effusion?

Dr. Holmes: There is no indication of it.

Dr. Cabot: That is the only thing that could have come wholly within six weeks. That film is evidence that he has been ill more than six weeks.

Dr. Holmes: There are quite definite changes in the lungs to go with it.

Dr. Cabot: Passive congestion. That is a surprising film; the physical examination did not lead me to suspect anything like so large a heart. It is important if we can exclude acute pericardial effusion then, because it is evidence that he has been ill much longer than the history would indicate. The two things we are thinking of are chronic valvular trouble and adhesive pericarditis. He cannot have the hypertensive type of heart trouble. There is no evidence of syphilis. It has to be rheumatic trouble of some kind, either in the pericardium or inside the heart. My guess so far is that the pericardium is involved, that there is a chronic pericarditis.

Dr. Fremont-Smith: Could that possibly be a congenital heart? The observation of his health was not very good beforehand.

Dr. Cabot: I do not know enough to say no to that. In a number of congenital hearts we get a shadow in the left upper margin, but not in all of them. So I should not be able to exclude that. Of course the history is against it, but then a good many histories are.

I suppose the thrill was systolic because the

murmur was. We have not heard of that thrill before.

I suppose the bilateral glands were in the neck.

Of course lifting heavy furniture is just the sort of work he should never have been allowed to do.

Notice that he comes in in the spring. It has been noticed many times that children's attacks of heart trouble are very prone to repeat themselves in the spring. I have seen it many times. I have often seen chorea recurrent in the spring.

NOTES ON THE PHYSICAL EXAMINATION

Good shift of the apex and no Broadbent's sign were of course put in specifically as evidence against adherent pericardium, so far as they go, but they do not go very far. He can perfectly well have adherent pericardium in spite of that evidence.

What do you say about that change in character of the murmur as one listened? If the cardiac contractions are equal while we are listening and yet the murmur changes it is generally put down as evidence of soft vegetations whose form might change. How much there is in that I do not know.

The electrocardiogram does not seem to me to throw any particular light on the problem.

Almost the only evidence we have had of venous congestion, aside from what Dr. Holmes has told us about the lung markings, is in the fundi.

He had an excess of red cells, probably because of the cyanosis.

The non-protein nitrogen is a trifle high, but not significant.

The temperature at the second admission is almost the same as it was before.

A heart shadow the shape of a water bottle generally means what, Dr. Holmes?

DR. HOLMES: Fluid in the pericardium. But these measurements do not look as though it were that.

DR. CABOT: The electrocardiogram of May 1 is of the same general significance, so far as I know, that the small blood pressure is.

The first time we have had edema is after May 1.

They record "a grating, metallic sound somewhat characteristic of a pericardial friction rub". They are getting gun-shy, as they ought to be, on all these pericardial signs. The ordinary person would put down "pericardial friction", and I am not at all sure it is not that.

DIFFERENTIAL DIAGNOSIS

DR. CABOT: Of course there is nothing in this history except an increasing decompensation in the heart, which has been essentially the same throughout, and is the only organ in the body showing evidence of disease. What is the heart going to show? Of course enlargement. What is the cause going to be? It seems to me it lies between adherent pericardium, valvular disease with adherent pericardium and valvular disease alone, and I should think in that order. We have not any really good evidence of valvular disease. Every bad case of heart disease towards the end has a systolic murmur, the younger the patient the louder the murmur. All children with heart disease of whatever kind have a systolic murmur. There is however no sign of valvular disease either of the mitral or of the aortic valve. This might of course be mitral regurgitation without any stenosis. The only point against it is the rareness of that lesion. It is seldom I think that we find a marked adhesive pericarditis, which I believe him to have, without some thickening on the valves. I think there will be some thickening. I do not believe there will be a marked valvular lesion.

The other condition to consider is an acute bacterial endocarditis. Against that we have the absence of any evidences of embolism and the absence of any positive blood cultures. I always hesitate to make that diagnosis without one or both of those supporting signs. He has remarkably little fever and anemia. On the whole, though he may have a very slight terminal endocarditis I do not believe acute endocarditis is at all an important factor in this case. So I come back to the place I started from in this discussion, that chronic adhesive pericarditis is the most important lesion.

I ought to say a word or two more about Dr. Fremont-Smith's suggestion of congenital heart disease. Such x-ray evidence as we have is against it, but that is not at all conclusive. The history is also against it. There were no signs or symptoms at birth, but that is the fact in a certain percentage of the cases. There is no clubbing of the fingers such as is common in that lesion. That however is not necessary either. Most cases of congenital heart disease have murmurs unlike those here described. That is, they are apt to be loudest at the base and there is apt to be more affection of the second sounds. Congenital heart cases are very apt to have no second sounds audible at all. That is not mentioned here. So I am inclined against congenital heart disease, though I cannot rule it out.

My first diagnosis is chronic adhesive pericarditis, my second that same with some unidentified valvular disease; outside of the heart nothing but evidences of passive congestion. Many cases of adherent pericardium show ascites. He did not show it; but that, like pretty much everything else on the negative side, does not rule it out. There may however be some affection of the liver beyond pure passive congestion, though I do not see how we can say so. I do not look for any lesion in the kidney or elsewhere.

A STUDENT: How about that soreness in the epigastrium?

DR. CABOT: I suppose that is all liver. Soreness over the liver in a case like this is common, although it is generally more chronic, it does not come and go as this does and usually is associated with vomiting due to passive congestion of the stomach.

DR. FREMONT-SMITH: Could he have had as long as that a tuberculous pericarditis with a large amount of fluid there?

DR. CABOT: Yes, certainly, as long as this. The cases I have known have however shown more fever, more constitutional evidences of infection and I think more evidence of tuberculosis elsewhere.

A STUDENT: In the first diagnosis are you assuming that that systolic murmur is due to adherent pericardium?

DR. CABOT: Yes. Practically every case of adhesive pericarditis has a loud systolic murmur, whatever is found on the valves. Some have diastolic murmurs too. I have seen diastolic murmurs with nothing but adherent pericardium. I do not understand it. Pericarditis is a marplot. It upsets many diagnoses.

A STUDENT: What do you think is the organism?

DR. CABOT: I think it is that of rheumatism.

A STUDENT: Do you think his yellowish skin is due to the liver?

DR. CABOT: We have no definite measurement of the serum color. I do not see that we can say whether he was jaundiced or not; certainly not much. If he was I should say it was associated with liver congestion, but I should not be very well satisfied with that.

A STUDENT: Will you go over the points on which you are making the diagnosis of chronic pericarditis?

DR. CABOT: On the rareness of any other lesion at this age causing such an enlargement of the heart without good evidence of valvular disease. When a heart is as big as this at this age, —throwing out as you can the hypertensive disease of elderly people,—and when you can get no more evidence of disease of the valves than we have here, which usually is no evidence, then statistically pericarditis is the commonest cause. Of course if we had evidence of kidney trouble, which would make it secondary, that would be another explanation. Kidney trouble and the other extracardiac causes of enlargement can be excluded. We have no good evidence of acute bacterial endocarditis or I think of a congenital or acquired syphilis or of valvular disease. The only thing left is chronic adhesive pericarditis.

A STUDENT: Is not the thrill evidence of valvular disease?

DR. CABOT: I should not say so. That is another thing that has been noted a number of times in chronic adhesive pericarditis.

A STUDENT: You would not even consider chronic nephritis?

DR. CABOT: No, I should not. On the basis of the facts we have I think it can be excluded.

A STUDENT: Is there any explanation of that pain relieved by lying down and by defecation?

DR. CABOT: Of course lying down eases up on the heart and so on the liver. Defecation would have to be a different explanation altogether. We have to suppose that defecation assists in emptying the liver, as I suppose defecation always does.

A STUDENT: Couldn't you get mitral stenosis there without the history giving any more signs than this?

DR. CABOT: We can get mitral stenosis with these signs. We cannot diagnose it with these signs. I have been confronted with it at autopsy with just these signs, but I do not see how anyone can say we have evidence of it.

A STUDENT: Do you often get a thrill associated with a blowing murmur?

DR. CABOT: Yes, often.

CLINICAL DIAGNOSES

Rheumatic heart disease.
Pericarditis.
Bronchopneumonia.

DR. RICHARD C. CABOT'S DIAGNOSES

(1) Chronic adhesive pericarditis or (2) chronic adhesive pericarditis with unidentified valvular disease.
Chronic passive congestion, general.

ANATOMIC DIAGNOSES

1. *Primary disease.*

   Hypertrophy and dilatation of the heart (rheumatic heart disease without valvular lesion?).

2. *Secondary or terminal lesions.*

   Infarcts in the lung.
   Anasarca.
   Septicemia, hemolytic streptococcus?

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This is a very unusual heart. I have never seen anything like it. It weighed 500 grams. The pericardium was absolutely negative. Every valve was absolutely negative. The coronaries were normal. There was only moderate perivascular fibrosis around the small arteries in the myocardium, and a few small collections of lymphocytes. There were no Aschoff bodies.

The kidneys were negative.

He had an infarct in the right lower lung.

In the search for a possible cause for the cardiac hypertrophy we took the trouble to remove the thyroid. It was negative.

He had, I imagine as a terminal event, a marked accumulation of fluid in both pleural cavities, a liter and a half. In the last stages of heart failure a very large amount of fluid can collect very fast in the serous cavities. In this case I do not believe it was there until the very end. I have more than once found several liters of fluid in the thorax when Dr. Holmes has had good x-rays taken within forty-eight hours of death showing no evidence of marked pleural effusion. The only explanation is that it can accumulate rapidly.

What the etiology of this heart condition is I do not know. My best guess is that it was rheumatic heart disease, and I finally reported it as that; yet I have no real evidence of it. I have seen one other case much like this, with marked hypertrophy and little myocarditis but with definite though functionally insignificant rheumatic lesions of the valves. In the present case the dilatation and hypertrophy were more marked on the right than on the left. That might make one think of the very rare condition called Ayerza's disease, associated with sclerotic lesions in the pulmonary arteries, but we examined the pulmonary arteries very carefully and I think we were able to rule that out.

DR. HOLMES: It could not go with the group of so-called idiopathic hypertrophy of the heart, could it?

DR. MALLORY: I cannot say that it could not, but he was pretty old for that. The only cases of idiopathic hypertrophy I have seen were under three years.

DR. HOLMES: There the heart muscle shows microscopic change, doesn't it?

DR. MALLORY: Not necessarily.

DR. CABOT: I should say this is a scandalous state of things. It does not fit anything, does it?

DR. MALLORY: Nothing we know of at the present time. Yet it is an entity, and is interesting in showing how little we really know of heart failure.

DR. CABOT: I should think this was "idiopathic hypertrophy". That is where the scandal comes in, because neither before death nor after it was any cause for the hypertrophy found. It is one of the cases which has to go down for the future as a marplot, marring any future diagnosis because it does not fit anything known so far at all.

CASE 17512

A CASE OF RECURRENT ATTACKS OF RIGHT UPPER ABDOMINAL PAIN. CAN THIS BE GALL STONES?

MEDICAL DEPARTMENT

A Scotch widow sixty-seven years old, a cook, entered April 4 complaining of attacks of abdominal pain, nausea and vomiting during the past four years.

She had usually had three severe attacks a year with weekly attacks of the same nature but very much less severe. The severe attacks came on gradually, usually after her heaviest meal, accompanied by sharp shooting pain in the right upper quadrant traveling around the midabdomen into the back and the left side, up the back to the head, and frequently down the legs and arms. The pain lasted three or four days, becoming less shooting and more continuous, and was relieved only by morphia. It kept her awake. During the attacks she vomited everything eaten and had continual nausea. The last attack occurred six weeks before admission, the one before it during the previous October. For the past three years she had had attacks at first every week, for the past month nearly every day. She had also had intermittent attacks of sharp shooting pain always starting in a localized spot in the right upper quadrant, radiating to the back and to the left abdomen and associated with a mild degree of nausea. These attacks were not comparable to the severe attacks except in the nature and localization of the pain. Her appetite had not been so good as usual, so that she had lost 36 pounds in the past year. For the past month she had had tarry stools. For the past three weeks she had had daily continuous shooting headache. At a Graham test at the Baker Memorial on March 12, three weeks before admission, the shadow of the gall bladder was not visible. No stones were seen. X-ray examination with a barium meal showed no evidence of organic disease in the stomach or esophagus. There was an appearance somewhat like diverticula of the colon.

One brother died of heart trouble, one brother and two of her children of tuberculosis. Her mother died of cancer of the stomach.

The past history is negative except for dyspnea on exertion and edema of the ankles during the attacks of pain.

Clinical examination showed a well-nourished woman complaining of recurring attacks of right upper quadrant pain. The skin and mucous membranes were normal in color. The sclerae were subicteric. The lungs were clear. The heart sounds were of fair quality. The location of the apex and the percussion borders were not made out. Otherwise the heart was normal. The artery walls were palpable and tortuous. The blood pressure was 214/110 to 110/70. Examination of the abdomen showed a mass in the region of the right kidney and slight tenderness under the right costal margin. There was marked cystocele and rectocele and 2° prolapse of the uterus. The cervix was badly eroded. There was a polyp from the os. The fundus was not made out. There was prolapse of the rectal and urethral mucous membrane.

Before operation the amount of urine was not recorded; the specific gravity was 1.026 to 1.030. There was no albumin at three examinations.

The sediment showed 2 to 6 leukocytes per field. The blood is not recorded.

Before operation the chart was not remarkable.

On April 7 operation was done. Two days later the patient had cough with sputum and moderate elevation of temperature. A portable chest film showed the diaphragm high on both sides with no demonstrable respiratory excursion. There was evidence of collapse of the right upper lobe, whether chronic or acute could not be determined without serial films. A portable film two days later showed the diaphragm still very high, the dullness at the right apex unchanged. There now appeared to be dullness involving all of the right lung field. The diaphragm was indistinct on the right, fairly well outlined on the left. The left lung field was clear except for obliteration of the costophrenic angle. The trachea did not appear to be displaced.

On April 11 the patient died.

Clinical Discussion

BY MAURICE FREMONT-SMITH, M.D., RICHARD C. CABOT, M.D., GEORGE W. HOLMES, M.D., AND TRACY B. MALLORY, M.D.

NOTES ON THE HISTORY

Dr. Fremont-Smith: If that abdominal pain, nausea and vomiting were four months instead of years in duration there would be certain things to consider that we do not consider here. We should think of chronic intestinal obstruction such as we get from carcinoma of the small or the large intestine beginning partially to close off the intestine. We may have in such cases periods of pain, diarrhea and nausea, even vomiting, which entirely clear up to recur later. Evidently there is some edema in relation to the carcinoma; the edema leaves and the patient is considered well until another attack. Of course four years is too long for that to go on. A person who has carcinoma of the intestine is going to hear seriously from it before the end of four years. I say carcinoma of the intestine because some other types of carcinoma may grow for years without causing symptoms. Metastasis from carcinoma of the breast may appear even after ten years, the patient being well during the interval.

Abdominal pain of four years' duration in a person of this age might mean another type of partial obstruction occurring as a result of diverticulitis of the sigmoid. In that condition we often have very mild symptoms, increasing constipation, sometimes even attacks of the pain caused by a low obstruction clearing up between times and leaving the patient well, except for an occasional attack, for years.

That radiation of pain simply has to be discounted. There is no known disease that could have radiation of pain like that. We have to assume that the pain coming on in rather frequent attacks was in the right upper quadrant. What could it be? With pain in the right upper quadrant in an adult we think first of gall stones. It is a very unusual history for gall stones, however; in fact it is at the first reading far too regular for gall stones. We do not get an attack every three months or every week. We are much more likely to have an occasional attack at irregular intervals. We do not know at what time of day these occurred. Gall stone attacks are more apt to come on at night. The description does not suggest gall stones. On the other hand the observation of these attacks may be faulty. The statement about the radiation of the pain makes one doubt the accuracy of the patient's observation. So we do not want to be too much led away from this likely diagnosis as yet.

I have never known the pain of a gall stone attack to last three or four days. It is a matter of minutes or hours. The pain is also usually too severe to be described as "shooting". It is a sharp tearing pain.

What else could give a pain of that sort? We can have severe pain radiating to the back and to the left side from a dilated kidney pelvis. We could have a Dietl's crisis causing pain and nausea. On the other hand the pain would be much more likely to radiate from along the course of the ureters and into the genitals and would be described as low down in the flanks rather than in the right upper quadrant. Abdominal pain is not infrequently caused by stone in the ureter, and this can be mistaken for appendicitis. But pain that comes from the actual kidney from dilatation of the renal pelvis or renal stone is more likely to be in the back.

What else could it be? Is there anything in the liver that could cause that sort of pain? The only thing I can think of is stretching of the liver capsule. That can give a tender liver and sometimes moderately severe pain. I should not expect it to be so severe as this. We might explain it as the result of acute decompensation with passive congestion of the liver. We should not expect the attacks to last so long. We certainly should have other evidence of heart failure.

A tumor of the liver would grow too slowly to cause pain. In cirrhosis we very rarely have much pain, but there is a mild dragging heavy feeling with occasional periods of pain. In this case it was sharp shooting severe pain that required morphia and lasted three or four days.

Another cause might be an infarct of the liver. Could she be having multiple frequently recurring infarctions of the liver? With those we might get edema and swelling of the capsule, but I believe the pain is a good deal milder than this is described as being.

A Student: How about a high appendix?

DR. FREMONT-SMITH: Of course in a woman of sixty-seven an appendix often runs an atypical course. For instance you may have abdominal pain, no spasm, no tenderness, and then the appendix may rupture. This does not seem to me to be appendix. You may say the pain is in the wrong place, but there is no wrong place for the pain of appendicitis. The pain is too long in duration. Four days is a long time for an appendicitis to last unless peritonitis has set in; the appendix usually begins to get better at the end of the second or third day. I do not think we can say it is not appendicitis, but I do not think it is.

Tarry stools: there again is a very important observation if we can believe it. If she has had tarry stools we have to assume something in the intestinal tract, a polyp or malignancy of very slow growth, which is not common in the intestine, or a peculiar cirrhosis giving these symptoms, perhaps because of a very low pain threshold. In this case we should have to assume esophageal hemorrhages or hemorrhage of some other cause, some blood disease, for instance purpura, very rare at this age and again not satisfactorily explaining the main thing for which she comes in, pain.

That Graham test does not mean that the gall bladder is not normal. We can have a pathologic gall bladder with gall stones in it and have a normal Graham test. We can also of course have pathology in a gall bladder that fills and empties well enough. We cannot depend on that test alone any more than on any other one test. The gall bladder was not visible and no stones were seen.

I wonder why they did not go further and tell us about the lower intestine, which I think would have been interesting.

Can diverticula of the colon explain the story? It can explain abdominal pain for four years; it can explain attacks of partial intestinal obstruction for four years. It does not seem that it could explain localized pain in one place, definite attacks of pain in the right upper quadrant similar to each other for four years. Moreover, pain due to diverticulitis should be at the umbilicus or below it, since the obstruction occurs at such a low point in the intestine.

Could tuberculosis explain the picture? I have been told that one can have tuberculous enteritis with intestinal discomfort and pain over long periods,—for much longer than carcinoma, which may cause the same symptoms. Tuberculosis does not satisfactorily explain this story. It does not explain the localized pain or the tarry stools. We do not get tarry stools in tuberculous enteritis. We get some microscopic blood. I have never seen a massive hemorrhage. I should like to leave that possibility open for Dr. Cabot and Dr. Mallory to discuss.

How much attention are we to pay to the dyspnea and edema during the attacks of pain? Perhaps that is important. If she did have recurrent attacks of congestive failure she might have recurrent attacks of stretching of the liver capsule which would give shooting pain; but one would not expect it to be so severe; one would not expect it to be recurrent. Yet so far that is the thing which satisfies me as well as anything else.

NOTES ON THE PHYSICAL EXAMINATION

"Subicteric sclerae" means nothing to me. Either they were jaundiced or they were not. If the man who saw them cannot say we shall have to say we do not know. We do get in cirrhosis a peculiar color in the sclerae that may be called muddy.

If the lungs are clear we do not have left sided cardiac failure. The lungs show congestion when the left side of the heart fails and does not pump the blood out of the lungs. If the lungs are clear the left side of the heart is working well.

We can expect a rapid fall in blood pressure when a patient gets near death. We expect it with coronary thrombosis, but we do not expect the diastolic to go down too. Rest in bed will bring down high blood pressure.

DR. MALLORY: The second reading was postoperative.

DR. FREMONT-SMITH: Thank you. That probably explains the fall.

It is very difficult to say sometimes whether the mass we feel is the kidney or the liver. Of course we are all told in physical diagnosis courses that the kidney is felt bimanually. But unfortunately we can feel in the same way a liver which is enlarged and falling backward. We cannot differentiate them definitely in that way. If we can feel the liver edge we have a definite thing we know is the liver. The liver is also said to move more with respiration. Of course it lies under a more movable part of the diaphragm. I have seen in textbooks the statement that a kidney tumor does not move with respiration, whereas a liver tumor does. We all know, however, that the kidney moves a great deal with respiration. Unless kidney tumors are fixed there is no reason why they should not move. If one were interested enough and the patient were not too sick, one could inflate the colon from below. In that case the liver would lie in front of the colon, and the colon lies just over the kidney. All they tell us here is that there was something that felt like the kidney. We do not know whether it was the kidney or not.

We know albumin is pretty good evidence of something wrong in the kidney provided the kidney is giving out urine. The trouble may however be functional rather than organic. Of course the diseased kidney may be shut off, and there may be damage without albumin in the urine.

DIFFERENTIAL DIAGNOSIS

Operation was done. Evidently they felt that there was something to operate for. I do not know what preoperative diagnosis I should have made. If they thought it was kidney I should think we ought to have some record of a pyelogram. If they were considering a kidney operation on a woman who shows evidence of occasional congestive failure, they would want to do everything in order to clinch the diagnosis. One cannot operate for kidney and gall bladder from the same incision. One must know whether to go behind the peritoneum in the flank for kidney, or through the peritoneum by abdominal section for the gall bladder. It is different when one is not considering the kidney. It is perfectly easy to do a frank exploratory laparotomy. If they are considering the kidney they must know where to make their cut.

Miss Painter: There was no pyelogram.

Dr. Fremont-Smith: Perhaps they thought it was not the kidney. Possibly they felt that there might be something in the gall bladder that in any case deserved an exploratory operation and thought that she was having too much pain to be explained by the only other thing I am thinking of, an attack of acute congestion, of swelling of the liver.

I am willing to say I do not believe it is a gall bladder or gall stones. I think the most probable diagnosis is cardiac decompensation.

PREOPERATIVE DIAGNOSES

Cervical polyp.
Cholecystitis.

OPERATION

A cervical polyp, obviously not malignant, was excised. A small bit of the lower lip of the cervix was excised.

A cholecystectomy was then done. The gall bladder was small, contracted, scarred and firmly adherent to the liver, especially along the fundus of the gall bladder, which was buried in the edge of the liver by thick firm adhesions. It was removed from above downward in retrograde fashion and was opened in two places because of its adhesion to the liver. The common duct was not probed. No stone could be palpated along its course.

PATHOLOGIC REPORT

Chronic cholecystitis.
Cholelithiasis.
Chronic endocervicitis.

FURTHER DISCUSSION

Dr. Fremont-Smith: Do you think they found the cause of her pain? I do not. I do not see how those conditions could possibly account for her pain.

Dr. Holmes, could that be a simple collapse? The patient died, I assume, of bronchopneumonia. Could the x-ray picture at that time be consistent with collapse and not pneumonia?

Dr. Holmes: No. A high fixed diaphragm on both sides could hardly be explained by collapse of the upper lobe. There would have to be something else.

Dr. Fremont-Smith: Would she have displacement of the heart to that side?

Dr. Holmes: Not with collapse of the upper lobe.

Dr. Cabot: I do not feel at all sure we have got hold of any pathology. She had hypertension of course. She had some pain. It was not more than I have known many old ladies to complain of as a result of constipation. I have seen people as sick as she get along perfectly well so long as they were not operated upon.

Dr. Holmes: She has, as you see, a very high diaphragm. A great many of these postoperative cases do have high diaphragm. Following abdominal operations it may be due to distention or fixation. I notice that many of them have very little movement of the diaphragm. In taking these films the first exposure is made with the breath out and the second with the breath in. By timing these we can record the expiratory and inspiratory excursion on the film. Here the process is at the right apex. I could not be at all certain from these films that it remained unchanged, though according to the description it did. The process in the lungs may be something which she has had a long time and which has nothing whatever to do with the high diaphragm.

Dr. Fremont-Smith: Can you say anything about the heart from those films?

Dr. Holmes: I can say that it is not displaced. I cannot say anything about its size.

I do not think the appearance in the lungs is characteristic enough to call collapse. It might very well be an old fibrosis. We had no films before operation. It would perhaps have been worth while to have them. From these films I should say we have a high diaphragm without motion, consistent with the peritonitis occasionally occurring after an abdominal operation alone. There is certainly no evidence of collapse of both lower lobes other than a high fixed diaphragm on both sides. Of course she had a process in the upper lobe which might be collapse, but is more likely to be fibrosis.

That was a good question in regard to the Graham test. Of course it is true that any laboratory test may be wrong. The report may be on some other patient. In this examination the test was positive, that is, the gall bladder

did not show. If the test is properly carried out it is usually reliable. The chance for error then is that the patient either does not take the dye or that he eats during the period when he was told not to eat. If you are sure the technique has been carried out the test is reliable. If the gall bladder shows it does not necessarily mean that it is free from disease. It is a test of function, and a gall bladder considerably diseased may function properly. Of course if it contains stones the shadows of the stones may be so hidden by the mass of dye in the gall bladder that they are not visible.

DR. CABOT: Could the lung process be old tuberculosis or acute pneumonia?

DR. HOLMES: I think not. It may be acute pneumonia on top of something else, but I think not.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Cholecystitis.
Cholelithiasis.
Bronchopneumonia.

DR. MAURICE FREMONT-SMITH'S DIAGNOSES

Hypertensive heart disease.
Acute congestive failure.
Bronchopneumonia.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Hypertrophy of the heart.
Arteriosclerosis.

2. *Secondary or terminal lesions.*

Operative wound: cholecystectomy with drainage.
Septicemia, streptococcus hemolyticus.
Localized peritonitis.
Early subdiaphragmatic abscess.
Acute fibrinous pleuritis, right.
Atelectasis.
Acute bronchitis.
Early pneumonia.

3. *Historical landmark.*

Endometrial polyp.

PATHOLOGIC DISCUSSION

DR. MALLORY: I do not believe that I am going to be able to answer the question as to the cause of her symptoms, the trouble being that she had both of the diseases that entered into the differential diagnosis. She did have both gall stones and a very much hypertrophied heart weighing 500 grams, with some degree of passive congestion of the liver. So we are exactly where we were before the autopsy. Undoubtedly the attacks of pain were due to one or the other. I am a little tempted to say they were due to gall stones.

A STUDENT: What do you think caused the blood in the stools?

DR. MALLORY: I do not believe she ever had it. I think that goes with the extraordinary radiation of pain. Pain that goes from the small of the back to the head predisposes one rather strongly to discount most of the other statements.

A STUDENT: What was the mass in the region of the right kidney?

DR. MALLORY: There was none. Probably they felt the kidney.

DR. HOLMES: What did the lungs show?

DR. MALLORY: The lungs showed bilateral collapse of both lower lobes, beginning bronchopneumonia, acute bronchitis and atelectasis. There was also a beginning subdiaphragmatic abscess.

We grew hemolytic streptococcus from the heart, the lungs, and the peritoneal cavity. There is no question but that postoperative infection was the immediate cause of death.

DR. FREMONT-SMITH: Where were the gall stones?

DR. MALLORY: In the gall bladder itself, not in the common duct.

DR. HOLMES: What did she have at the apex?

DR. MALLORY: A slight pneumonic process is all I have any note of in the record.

DR. CABOT: All the things that have been mentioned above the diaphragm are obviously postoperative things, and the fact that she had a little passive congestion with as high a blood pressure as she had does not seem at all remarkable. I can scarcely believe that the gall bladder caused all that pain. The gall bladder is the only lesion that they found below the diaphragm, but I do not see why we should suppose that the lesion found was the cause of the symptoms. It seems to me I have seen many old people who had fully as many symptoms as this when there was nothing in particular to account for them.

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INDICATIONS FOR TONSILLECTOMY

IT is valuable occasionally to have a check-up on the efficacy of such a universal procedure as the removal of tonsils and adenoids. This, undoubtedly the most frequently performed of the major operations, has enjoyed in the past a vogue, extending even to some degree into the present, which contains a few of the elements of a racket.

Tonsils and adenoids, subjected to the influences of an artificial and deleterious environment, become diseased, and when diseased should be removed. Of this there can be no question. A serious question may be raised, however, as to whether the necessity for their removal can always be accurately determined on the casual inspection of the school doctor or the school nurse. In general it may be said that there are certain definite indications for the removal of these organs which must be accepted in lieu of any more exact information on the subject. These indications are the presence of scarred, cryptic or ragged tonsils accompanied by persistently enlarged cervical glands; tonsils so large as to be definitely obstructive; persistent mouth breathing due to obstructive adenoids; a history of the rheumatic infections; a history of repeated attacks of sore throat or otitis media or of frequent, severe and prolonged acute upper respiratory infections. In the absence of any of these indications the burden of proof is on the individual who would advise operation.

The beneficial results of tonsillectomy are not usually so spectacular as the patient is frequently led to believe, and certain ill-effects must not be disregarded. Dr. A. D. Kaiser of Rochester, N. Y., has so far carried on the longest observations on the largest groups of children yet recorded, and his findings must be given serious consideration.

After ten years' observation of a group of one thousand school children, tonsillectomized at the ages of five or six years, comparing them with a control group of similar size, Dr. Kaiser arrives at the following conclusions:

"(a) Outstanding benefits from operation are apparent in influencing the incidence of sore throats over a ten-year period. Ten per cent of the tonsillectomized still have sore throat, while 35 per cent. of the control children have repeated attacks. Twenty-two per cent. of the first group and 30 per cent. of the second group still have head colds, while a higher proportion of the first group than the second have infected sinuses and postnasal discharge. The incidence of otitis media is slightly lessened by the operation. Laryngitis, bronchitis and pneumonia were somewhat more frequent in the tonsillectomized, but primary attacks of rheumatic infections occur less often. Incomplete removal of tonsillar tissue does not afford so good protection against the usual throat affections as does more complete removal."

PROCEEDINGS OF THE HEALTH EDUCATION FOUNDATION OF THE ACADEMY OF MEDICINE OF CLEVELAND

THE Health Education Foundation of the Academy of Medicine of Cleveland is again making a contribution to the public health in that community by presenting to the public on Sunday afternoons in Severance Hall, Euclid Avenue and East Boulevard, three health lectures on subjects of interest to the general public.

The first lecture was on Sunday afternoon, December 6, 3 P. M., "What Science Knows About Cancer", by Elliott C. Cutler, M.D., Professor of Surgery, Western Reserve University.

This will be followed on Sunday afternoon, January 17, 3 P. M. under the title: "Why Think About Eating?" by Henry J. Gerstenberger, M.D., Professor of Pediatrics, Western Reserve University and on Sunday afternoon, March 20, 3 P. M., "Fighting Death After Forty", by R. W. Scott, M.D., Professor of

Clinical Medicine, Western Reserve University; and Chief of Medical Division, City Hospital.

These lectures are made possible this year by a gift to the Health Education Foundation from the S. M. A. Corporation of Cleveland. The general subject of the talks is "A Second Series on Life in a Strenuous Age."

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

ALTON, BENJAMIN H. B.Sc., M.S., M.D. Harvard University Medical School 1914. F.A.C.S. Surgeon, The Memorial Hospital, Worcester, Mass. Consulting Surgeon, Fairlawn Hospital, Worcester State Hospital and The Harrington Memorial Hospital, Southbridge, Mass. His subject is "Spontaneous Intraperitoneal Rupture of a Tuberculous Bladder." Page 1177. Address: 27 Elm Street, Worcester, Mass.

DAFFINEE, RALPH W. A.B., M.D. Harvard University Medical School 1928. On staff, Out-Patient Department, Massachusetts General Hospital. Address: 270 Commonwealth Avenue, Boston. Associated with him are:

GARLAND, JOSEPH. A.B., M.D. Harvard University Medical School 1919. Physician to the Children's Medical Department, Massachusetts General Hospital. Instructor in Pediatrics, Harvard Medical School. Consulting Pediatrician, Massachusetts Eye and Ear Infirmary, New England Baptist Hospital and Addison Gilbert Hospital, Gloucester. Address: 264 Beacon Street, Boston. And

GRAY, MILDRED G. B.S., Boston University 1928. Research Assistant in Pediatrics, Massachusetts General Hospital. Address: 10 Lincoln Avenue, Somerville. Their subject is "Blood Sugar Changes in Children Following Surgical Operation." Page 1182.

WHITAKER, LESTER R. M.D. Harvard University Medical School 1923. Second Assistant Visiting Surgeon, Massachusetts Memorial Hospitals. Associate Member, Evans Memorial Hospital. Instructor in Anatomy and Assistant in Surgery, Boston University School of Medicine. Address: 270 Commonwealth Avenue, Boston. Associated with him is:

ELLSWORTH, SAMUEL WALKER. A.B., M.D. Harvard University Medical School 1896. Roentgenologist, Massachusetts Memorial Hospitals. Address: 520 Beacon Street, Boston. Their subject is "An Improved Oral Method for Cholecystography." Page 1183.

LOWMAN, CHARLES L. M.D. University of Southern California Medical School 1907. F.A.C.S. Lecturer on Growth Divergencies, University of Southern California and Pomona College. Attending Orthopedic Surgeon, Methodist Hospital. Chief of Staff, Orthopedic Hospital-School. His subject is "Plastic Repair for Paralysis of Abdominal Musculature." Page 1187. Address: 2400 South Flower Street, Los Angeles, California.

PASCAL, JOSEPH I. B.Sc., M.A., M.D. University of Vienna 1931. On Ophthalmological Staff, Boston Dispensary. Has been engaged in research work in Physiologic Optics at home and abroad. His subject is "A Fixation Point in Perimetry." Page 1189. Address: c/o Dr. Lappin, 636 Beacon Street, Boston.

LOVELAND, FRANK, JR. B.S., A.M. Staff, Harvard Law School Survey of Criminal Justice 1927-1930. Supervisor of Parole, Department of Justice, Washington, D. C. February, 1930 to August, 1931. Director, Division of Research for the Prevention of Crime, Massachusetts Department of Correction, August 1931-. His subject is "The Place of Science in the Treatment of Criminals and in the Prevention of Crime." Page 1190. Address: Department of Correction, State House, Boston.

WAITE, FREDERICK C. B.Litt., A.M., Ph.D. Assistant in Anatomy, Rush Medical College 1900-1901. Assistant Professor, Associate Professor and Professor of Histology and Embryology, Western Reserve University 1901-. His subject is "Dr. Nancy E. (Talbot) Clark. The Second Woman Graduate in Medicine to Practice in Boston." Page 1195. Address: Western Reserve University, Cleveland, Ohio.

THE DOCTOR'S SADDLE-BAG

THE USES OF ADVERSITY

IT is the undenied prerogative of Bernhardts, Lauders and all the great subjects of the limelight to engage upon a succession of farewell tours so long as the public will rise to the lure; Maude Adams may retire with all the memories of a wistful Peter Pan about her and emerge from the obscurity of affectionate recollections as a stately Portia armed with a rather obvious, even if Shakespearean logic; the feathered swan himself, recovering from a morbid indigestion or what have you, may live to sing again. So it is not entirely incompatible with human or avian nature, the first of which, at least, is in its essence inconsistent, for even a saddle-bagger to come again to bat and if unable to knock out a three-bagger to hope, perhaps, to be passed on balls.

During this period of nearly two years in which the Saddle-Bag editor has sat in his corner, his fountain pen a frozen asset, trying to balance the Standard Dentifrice stock he bought on margin in 1929 against his uncollectible accounts, and finding them on the same side of

the ledger, much has happened. The gilded sons of prosperity have been introduced again to the iron virtues of hard times and have not liked it. They thought they had shaken these homespun fellows at the corner back there, but they have been going in opposite directions around the same block and so had to meet again. It is hard, in lieu of bread, to have to draw the belt in to that last unused hole, but at least it is a comfort to have a belt, if the belt can stand the strain. The importance of a belt, in hard times, is worth a passing reflection, for with it we can keep our breeches on and our shirts tucked in and so retain our respectability.

Our own exclusive monopoly is not untouched by the chill hand of penury and does not remain as exclusive a monopoly as some of us would wish for. The results of the hard times are passed on along the line and the bond salesman—even the Bond bread salesman, who basks in the artificial sunlight of an irradiated loaf—cannot pay his doctor if he cannot sell his bonds. Some of us chafe at the difficulties now attendant on the earning of a relatively honest living as if it were our right still to be prosperous when Prosperity is hiding her face from all other men. One man only have I met who admits to a degree of prosperity—a manufacturer of bottle caps. The inference is obvious, for the unemployed find both employment and consolation in their cellars watching the production of carbon dioxide from the action of yeast on sugar.

The doctor who is sure of himself, however, knows that an economic situation, like fluids, must obey the laws of physics and eventually find its own level, and there is no other way out. He knows that the times are changing and that he must change with them if he is still to be on the top of the wave when the tide of prosperity returns. He knows that no doctor, that no society of doctors has any longer a personal trademark branded on a patient or on a group of patients or on a type of practice. He knows that preventive medicine and public health have come to stay and that if he does not put his shoulder to the wheel he will be left standing in the mud when the band wagon rolls on. He knows that the concerted clamorings of a vociferous minority, while spectacular, do not in the least represent public opinion, and that in the last analysis our masters, the public, are going to get the best medical attention they can command, provided we do not, through our own shortsightedness, drive them into the experiment of absolute state medicine.

State medicine we have not now and state medicine we are not headed for provided we have the wit to see that we must ourselves offer a suspicious public some acceptable substitute for it. This substitute will not be a reversion to the practice of fifty years ago or a monopolistic division of the available practice among the available practitioners. It will consist in improving ourselves as the opportunities for good practice improve, laying especial emphasis on the maintenance of health and the prevention of disease. It will consist in holding our patients because we deserve their confidence, not because our ministrations are the best they can get under the circumstances. It will consist in playing ball with the constituted health authorities who are out to help us in our work if we are willing to be helped, but whose first duty, nevertheless, is to the Commonwealth to which they are responsible.

This Christmas season of 1931 may not be quite so festive, perhaps, as others have been or as we might wish. We are in the travail of shrinking pains which are so much more severe than growing pains. We have accustomed ourselves to focussing on the dirty windowpane rather than on the blue sky beyond it. We are in the midst of hard times and we are beset with fears and doubts. We still have much to be thankful for, however. Our ideals are what they always were, only perhaps a little purer. We are unconsciously strengthening our characters through adversity. We have an able Department of Public Health and a courageous and honest commissioner willing to lead the way out of some of our difficulties. We have faith in the fundamental nobility of our profession once it is freed from the petty jealousies, absurdities and smallnesses which beset it.

May the New Year give us that spiritual uplift which comes from within!

THE BOSTON MEDICAL LIBRARY

CORNELIUS REA AGNEW, M.D.

1830-1886

MANY perplexities have agitated the profession of medicine, which have had an important bearing upon present-day relations of the profession to one another and to the public. It might be well for us to recall experiences leading up to the settlement of certain of these problems and the personality and character of those who helped to solve them. Many of these matters might have had a different solution had not the individuals to whose judgment they were originally propounded been possessed of sterling character and sound judgment. Happily for us, at the time that many of them were clamoring for settlement, the dominant men in the councils of the profession were men of integrity and far-reaching intelligence. This is one of the outstanding reasons why it is worth while to let in the light of history upon our present-day life that one may recall what was the basis of action taken by our medical forebears when they were called upon to make momentous decisions and what manner of men they were who made them.

For the most part they were men of liberal education, qualified by their training to weigh evidence and to view perplexing problems from various angles and sufficiently versed in the experience of the past to be able to see things with an historical perspective. In very many instances they were actuated by a profound sense of moral responsibility, generated by their own and their ancestors' fundamentally religious training. They were more socially-minded than we are today because social-mindedness was then an individualistic matter and not a delegated prerogative to be exercised by corporate bodies. An example of this type of physician who made it his business, as he felt it his duty, to lend the weight of his influence to the settlement of such questions was Dr. Cornelius Rea Agnew, the distinguished ophthalmologist of New York, whose active professional life ended in the eighties of the last century.

He was born in New York on August 8, 1830. In him were joined characteristics of French, Scotch and Irish progenitors. In 1665 a Huguenot ancestor was driven out of France and took up his abode in Ireland where he identified himself with the Scotch-Presbyterians. In 1786 his grandfather came to this country. He first settled in Philadelphia and later moved to New York, engaging in the shipping and commission business. His father, who succeeded to the business, very soon became one of the foremost merchants in the city. He married a Scotch woman. True to the religious upbringing of the Covenanters and their Presbyterian prototype in this country, Agnew was from the outset of his career, a conscientious, religious man. When he was fifteen years of age he entered Columbia College from which he was graduated in 1849. He at once began the study of medicine under a preceptor, Dr. J. Kearney Rogers, who was an eminent physician and Professor of Anatomy at the College of Physicians and Surgeons. This Institution gave him his medical degree in 1852 and he at once determined to devote himself to the eye and ear. He succeeded in being appointed to a position on the staff of the New York Eye and Ear Infirmary, provided that he go abroad and familiarize himself with the methods in use in European clinics, and this he did, going first to Dublin, noted at that time for its clinical facilities in the eye as well as for the fact that Sir William Wilde was attracting pupils from all over the world. From here he went to London and Paris returning home in 1856 during which year he married. His energy, singleness of purpose and attractive personality soon made him many friends and, as practice increased rapidly, his reputation was not confined to New York nor even to this country, for patients sought his skill from overseas. In spite of the large private and hospital practice which he enjoyed, he rarely failed to obey a call to give his aid and counsel wherever it was needed in ways which were not strictly medical. Charitable organizations of all kinds, educational institutions and religious projects did not find him wanting when they asked his help. He was at one time Surgeon General of the State of New York. During the Civil War he was one of the organizers and the most active member of the U. S. Sanitary Commission. Probably one of the most influential political Clubs in the country, certainly in New York, is the Union League, of which he was one of three organizers. He was a trustee of the Public Schools and an originator of the School of Mines at Columbia. He founded the Manhattan Eye and Ear Hospital and was Governor of the Woman's Hospital, Trustee of Columbia College and Regent of the State Hospital for the Insane at Poughkeepsie. For many years he conducted a clinic for diseases of the eye and ear which he established at the College of Physicians and Surgeons. He was the founder of the Brooklyn Eye and Ear Hospital. He was honored as President of the Medical Society of the State of New York. He became a Director of the N. Y. Tract Society, of the Young Men's Christian Association, a trustee of the Mission Churches of the Fifth Avenue Presbyterian Church, of which he was an Elder. President Arthur appointed him as U. S. Commissioner of Indian Affairs and through this position he became greatly interested in the Carlisle Indian School and work among the freedmen of the South.

In addition to the responsibilities attaching to these various positions, and he was not the man to hold office and give no time or thought to the work on hand, he conducted one of the largest practices in the city in his time. He enriched the literature of the subjects in which he was interested by frequent and able contributions to the current periodicals and journals. Membership in the numerous local and national medical organizations to which he belonged meant for him an active participation in their proceedings. He had a good deal to do with the organization of the New York Pathological Society and the New York Ophthalmological Society. For several years he was President of the American Ophthalmological Society. He was active in his membership in the New York Academy of Medicine, the New York Academy of Sciences, the Medical and Surgical Society of New York, the medical society of the County of New York and was honored by election to membership in the International Otological and the International Ophthalmological Societies and the Medico-Chirurgical Society of Edinburgh, Scotland. It would be impossible to include in this sketch many incidents indicating the generosity and kindly feeling that Agnew constantly exhibited—in a quiet, unostentatious way toward the poor and unfortunate that crossed his pathway. He was ever on the watch for opportunities to be of service in the intimate,

personal ways that the office of a physician so frequently affords and, Puritan though he was in many ways, his conduct lacked the austerity and uncompromising intolerance that so often characterized that type of individual. He was an outstanding example of a true philanthropist for he gave not only of his substance to aid the unfortunate individuals who were in need, but he gave of himself. Though he had a very large income, when he came to leave this life he had made only a very modest provision for his large family, seven daughters and one son, having invested the majority of his earnings in the sort of securities that yielded intangible dividends. His attitude toward one of the questions that disturbed the practitioners of his day illustrates the thought suggested at the beginning of this sketch. Legal registration of physicians and protection of the public against charlatanism and incompetency were under discussion in New York State at one time. In the legislation proposed in order to secure this protection to the lay public was an enactment forbidding consultation under any circumstances other than an "emergency", between a regular licensed physician and a quack or otherwise irregular practitioner. Agnew argued against such a provision believing that it was contrary to sound policy to withhold from the patient the benefit that might come to him through consultation with a competent physician, simply in order to maintain an attitude of aloofness on the part of an association of doctors who sought to keep their skirts clear of contamination by association with incompetents. The symposium of professional opinion in New York that was called out by this proposed legislation is well worth reading and of the papers that compose it Agnew's is certainly one of the best.

Agnew's death would, to us in these days, seem a particularly tragic one for it occurred as the result of delay in recognizing the significance of the early signs of perforation of the appendix. General peritonitis developed and death from sepsis followed in a few days, on April 18, 1886.

MISCELLANY

A BUILDING FOR ANIMAL AND PLANT PATHOLOGY

Ground was broken on November 9, 1931, for the Division of Plant Pathology at the Princeton branch of The Rockefeller Institute for Medical Research. The new buildings will consist of a laboratory, 144 feet by 40 feet, two and one-half stories in height, eight greenhouse units, each 65 feet in length, and potting shed. Dr. Louis O. Kunkel of the Boyce Thompson Institute for Plant Research will be in charge of the new division. The buildings were designed by Messrs. Coolidge, Shepley, Bulfinch and Abbott of Boston, and are being constructed by Matthews Construction Company, of Princeton, New Jersey. The name of the Princeton branch has been changed to the Department of Animal and Plant Pathology of The Rockefeller Institute for Medical Research.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Fatigue as a Symptom of Disease*

What do we mean by "fatigue"? By fatigue we mean the sense of being tired; finding work an effort. We are all familiar with this sense of being tired. It is normal to be tired at the end of a busy day, at the end of the week, or before a vacation period. We often complain about it, wishing we could do more of the things we want to do. Yet a sense of fatigue or of being tired should be thought of as a protective mechanism given us for the preservation of life and health. It is important, therefore, to learn how to interpret fatigue correctly and be able to understand what to do about it.

A sense of fatigue from conscious overwork or too little sleep is easily understood, but its significance is not always heeded. Overwork or too little sleep may lead to the wearing down of the body's reserve and make us more liable to develop disease. Many people are unconsciously driven by interest in life, a sense of duty, financial necessity, ambition, or some great emotion, to overdo. They are quite unconscious of being tired. A 100% person may do a 125% job or try to do so. An 85% person may try to do a 100% job. Gradually, or even suddenly, such people may develop a sense of fatigue that is constant. They have allowed themselves to become worn out by spending more energy per twenty-four hours in work and play than they received from rest and diet. Their health bank account is low. They need rest by adding one, two or three more hours in bed in the twenty-four, or a vacation devoted to rest rather than to vigorous play. A prescription of sixteen hours in bed in the twenty-four for a week or two often works wonders. From the standpoint of preventing disease, the raising of the body's resistance to germs by more rest is very important. Many diseases, such as tuberculosis, rheumatism, pneumonia and colds, are frequently preceded by periods of being tired out to the point of exhaustion. The lesson of keeping fit physically is important, and sufficient rest is essential for this.

A second type of tire is not fatigue at all, but a sense of fatigue. It is of mental and emotional origin. We are all familiar with the experience of feeling well and ready to do a certain thing that interests us, and then suddenly feeling tired or exhausted when faced with the necessity of doing something we very much dislike doing. There are many people who feel thwarted in ambition, un-

*Broadcast November 26, 1931, Station WBZA, 4:50 P. M., Hotel Bradford, Boston.

happy in their work or unhappy with the people with whom they live. These people live under conditions of emotional strain. They generally have a symptom of fatigue, except under conditions pleasurable in nature. Such people are really mentally sick. They need help in solving their living problems. They need to find a way out of their difficulties. In addition, they need to be kept busy and they need physical activity and physical exercise.

What has just been said is necessary to an understanding of the significance of fatigue as a symptom occurring in a third group of people—people with disease of the body. Normal health and abnormal physical conditions, which we call disease, merge, the one into the other with no sharp line of distinction. The physician's task is to recognize disease early and take measures to correct it, separating patients with diseases from those with tired bodies or unhappy minds. A sense of fatigue, tiring easily, or a sense of exhaustion, that is constant over a period of days or weeks, is so commonly associated with disease that a person having such a symptom should consult his doctor—the one who is a student of the laws of health—in order to find out what it means and what to do about it. Early diagnosis of disease is of utmost importance if he would avoid trouble and maintain his health capital intact.

A sense of fatigue occurs in most types of disease, from the less important to the very serious. It is present in most diseases due to germs or bacteria, in conditions of undernutrition and deficient diet, in diseases of certain glands of the body, in heart and kidney disease, in the mild and severe anemias or blood diseases, in tuberculosis and in cancer. It is impossible to give a picture of these different diseases now; nor is it necessary. The severe, sudden, prostrating diseases, due to germs or bacteria, send a patient to a doctor at once. It is the diseases gradual in onset to which your attention must be called.

First, I should like merely to mention the fact that many women are dieting unwisely in order to keep their weight down. They leave out certain foods very important to health and develop a sense of fatigue for which they take excessive amounts of tea and coffee. They need more fruit, eggs, dairy products and green vegetables. We see others who omit such foods because of ignorance of their importance or because they dislike them.

Fatigue occurs frequently as a symptom of early tuberculosis of the lungs. Generally it is associated with cough, afternoon fever, loss of appetite and loss of weight. Frequently, in an early case, fatigue is the first evidence that tuberculosis germs are present and giving symptoms. Unexplained constant fatigue, especially in a younger person—under thirty—and especially if accompanied by one or more other symptoms, calls for further study of the patient by the physician.

A sense of fatigue may indicate Bright's disease or kidney trouble. This diagnosis cannot be accurately made without urine examination, but if the fatigue is associated with swelling of the ankles and pale complexion, it suggests kidney trouble and should be studied further.

Abnormalities of the glands of the body often give a sense of fatigue. One of the most common is thyroid gland deficiency. A sense of exhaustion all out of proportion to work done, tendency to put on weight, dry skin, brittle nails, puffiness under the eyes, and sense of being cold when others are warm, suggest this condition, especially when present in women of middle age.

A sudden and increasing sense of fatigue in a person over fifty—a fatigue not easily explained—may be important, for it may be the early evidence of several serious conditions. This symptom, when accompanied by loss of appetite, loss of weight, and increasing weakness, may be especially important.

Those of you listening thus far to this story may now be in the position of the average second- or third-year medical student and feel sure that you have one of these diseases. We urge you not to move so fast in your diagnosis. Probably you do not have the disease. However, if you have been having fatigue for a long time and do not know the cause, see your doctor, help him to get the facts and let him answer your questions as to what it means. It may save you serious trouble.

A patient of forty-four was seen some years ago whose chief complaint was that she felt tired all the time. She was trying to carry on in a 100% world, despite the fact that she had limited strength. This in itself was enough to make her feel tired. In addition, she had fatigue because she had a deficiency of her thyroid gland. Because she had this deficiency she put on weight easily. Since she did not want to be fat she cut down on her diet, doing so unwisely. This bad diet in itself would make her feel poorly. Probably due to these three factors, she had "neuritis" from time to time. This neuritis proved to be rheumatism. The correction of the overdoing, by more rest, the gland deficiency by giving thyroid tablets, and the bad diet by a better one, straightened her out, eliminated her fatigue and her neuritis and gave her joy in living.

ANNUAL REPORT OF THE PUBLIC HEALTH SERVICE SUBMITTED TO CONGRESS

Surgeon General H. S. Cumming has just submitted to Congress the annual report of the United States Public Health Service for the past fiscal year.

One of the important public health duties of the Federal government is the prevention of the introduction and spread of infectious diseases from foreign countries. The relation of commerce in connection with the spread of epidemic disease is well known. In carrying out the requirements of law with reference to the defense of our territory from invasion by contagious diseases from foreign countries, especially in view of the new problems occasioned by the rapid increase of international

aerial transportation, it is important to keep currently advised as to the prevalence of disease, not only in the United States but throughout the world in so far as may be practicable.

As heretofore, during the past year there was a constant interchange of sanitary information with other nations of the world. International sanitary agreements—the International Sanitary Convention of Paris and the Pan American Sanitary Code—have operated to improve the promptness and completeness of the information relating to the prevalence of disease received from foreign governments.

Cholera was more prevalent during the calendar year 1930 than it was during 1929, although in 1930 it was not reported outside of Asia and the adjacent islands. Cholera did not appear in the continental United States, but an outbreak began in the Philippine Islands in May, 1930, and continued throughout the fiscal year. Cholera appears every year in parts of Asia and, under present conditions, outbreaks in the Philippine Islands may be expected, but the number of cases and deaths is much smaller than it was a few decades ago.

Over the world generally, plague was as widespread as it has been in recent years, although the total number of reported cases was smaller than it was in 1929. In South America plague was reported during the calendar year 1930 in Brazil, Ecuador, Peru, and Argentina. Plague infected ground squirrels were reported from California during the past fiscal year, and a plague infected rat was reported from the Island of Hawaii.

During the fiscal year yellow fever was present in Brazil, in South America, and in the Gold Coast and British Cameroons in Africa. One case was reported at Lagos, Nigeria, which was said to have been infected in a laboratory. The disease was not reported in the city of Rio de Janeiro, Brazil, nor in Colombia during the fiscal year, although four cases were reported in Magdalena Province, Colombia, in July, 1931.

Reports of the prevalence of communicable diseases received by the Public Health Service from State health officers and preliminary reports of deaths from several sources indicate that the health record for the United States for the calendar year 1930 was exceptionally good. The record for the first half of the year 1931 was also generally good, although an epidemic of mild influenza during the early months of 1931 increased the death rates for a time and gave the year an inauspicious beginning.

Infantile paralysis was more prevalent during the calendar year 1930 than it was in 1928 or 1929. In the Spring of 1930 the reports showed increased incidence of infantile paralysis on the Pacific Coast, and later considerable numbers of cases of the disease were reported in other parts of the country, especially in Louisiana, Oklahoma, Kansas, and some of the north central states. In the country as a whole, infantile paralysis reached its peak for the year about the first of October. An outbreak began in New York City soon after the close of the fiscal year.

The prevalence of typhoid fever has been decreasing in the United States since comparable yearly statistics of cases and deaths have been available. During the calendar year 1930 a slight reaction was shown by the reports. The increase was reported during the last six months of 1930; in some States, at least, it may be influenced by the drought conditions which resulted in the pollution of water supplies or necessitated the taking of drinking water from new or unknown sources. In 1920 the typhoid fever case rate in the United States was 38.5. In 1930, it was 22.0, per 100,000 population.

In protecting the United States from the importation of dangerous diseases, 18,372 vessels, 934,780 passengers, and 1,275,061 seamen were inspected on arrival at domestic and insular ports, by quarantine officers, and 761,436 alien passengers and 916,868 alien seamen were examined by medical officers under the immigration law. Among the more important causes for certification of disease in alien passengers were trachoma, tuberculosis, feeblemindedness, insanity, and the venereal diseases, while among alien seamen the more important causes were the venereal diseases, tuberculosis and trachoma.

Congress made available to the Public Health Service, through an act approved February 6, 1931, the sum of $2,000,000 for emergency health work in the drought stricken areas. In carrying out this work, a modification of the plan used for the regular coöperative rural sanitation activities was adopted, with the result that details of administration were quickly worked out with the States and field work was under way within a short time. By the end of the fiscal year, there were in operation in the 16 States within the drought areas 333 field organizations, including work covering 395 counties. The work carried on has consisted in the activities usually conducted by full-time county health units with special emphasis upon the prevention of communicable diseases by general immunization, the sanitation of milk and water supplies, the improvement of excreta disposal conditions, and attention to the health of infants, children and mothers. It is believed that many of the temporary units organized for this work will serve to stimulate the establishment of permanent health departments supported with local funds in the future.

During the year studies relating to various public health problems have been conducted. Among the subjects investigated may be mentioned cancer, leprosy, malaria control, pellagra, nutritional diseases, Rocky Mountain spotted fever and typhus fever. Special studies were conducted throughout the year on health problems in industry, child hygiene and stream pollution.

In 157 ports of the United States and its possessions, hospital care, out-patient treatment, and other medical services, were furnished to American merchant seamen and other legal beneficiaries.

A significant change affecting the individual Federal prisoner occurred during the past fiscal year. Under the act of Congress approved May 13, 1930,

the Public Health Service inaugurated a system for supervising and furnishing medical and psychiatric services for Federal prisoners.

The personnel of the Public Health Service consisted of a corps of medical, dental, sanitary engineer and pharmacist officers, nurses, specialists and other technical and non-technical employees. At midyear, the personnel consisted of 1,094 medical officers and other persons of scientific ratings, and 3,661 general technical employees.

ARE WE USING TOO MUCH SUGAR?

Although five and a half million tons of refined sugar are used annually in the United States and it is popularly supposed that sugar may be detrimental if used freely in the dietary of average people, Dr. Lloyd Arnold, bacteriologist of the Department of Health of Illinois, has raised the question as to whether sugar is harmful, with the statement that, at present, we have no evidence to prove that we are eating too much sugar because we have not been using sugar as a food in this large amount long enough to find out whether it is detrimental to health.

He of course concedes that the diabetic cannot handle sugar and that too much sugar is harmful, but he regards sugar simply as refined starch which can be absorbed in the digestive tract without having to go through chemical changes. Perhaps his further studies will tend to show in a general way how much sugar may be taken into the system without doing harm.

From a practical standpoint with all the chemistry at work in the human system, one may question the wisdom of having the refined starch take the place of the more crude constituent of the vegetable kingdom.

Few clinicians are ready to lift the ban on the too free use of sugar by well-fed people. Dr. Appel, Secretary of Health of Pennsylvania, in discussing this subject explains the danger in eating too much sugar or foods containing sugar because of the deleterious effect on the appetite thereby displacing important foods.

ALLEGED INSURANCE FRAUDS

It has been intimated in the statement charging fraud by lawyers and doctors in automobile insurance cases that a considerable number of lawyers and doctors are involved.

Four defendants have been held in $1,000 each for grand jury investigation.

IS LEFT-HANDEDNESS INCREASING?

Dr. George Mendenhall, professor of psychology at Midland College, Nebraska, claims that compelling left-handed children to develop right-handedness is responsible for an increase of stutterers.

He says that educators are inclined to discredit the custom of forcing right-handedness, because it is responsible for the alleged increasing number of stutterers.

INCREASED PREVALENCE OF DIPHTHERIA

The United States Public Health Service reports that in 46 states with an estimated population of more than 33,180,000, 2,735 cases of diphtheria were reported in 1931, which is an excess of 1,966 cases over those reported in 1930.

These figures indicate less observance of the Schick test and the use of toxin-antitoxin than is reasonable to expect at this time of general knowledge of this important preventive treatment. It would be interesting to know how far physicians are to blame for this failure to accept and apply this valuable resource.

SHOULD COLLEGES AND SCHOOLS ABOLISH FOOTBALL?

Dr. Henry O. Reik, executive secretary of the New Jersey State Medical Society and editor of that society's medical journal, has been quoted as an opponent of football because of the danger incident to this game. His argument was presented at a meeting of the Tri-State Medical Society with delegates from New York, New Jersey and Pennsylvania.

Dr. Reik characterized this game as barbarous because football coaches send players into the game to "get" the stars on the opposing team and with this in mind often inflict serious injuries which may result in death.

Here is an opportunity for advocates of football to present arguments in support of their views.

HOSPITAL RELIEF

So much has been accomplished by hospitals in curing and mitigating disease that when an appeal for funds is made there has usually been a generous response.

By reason of the economic conditions at this time, difficulties exist in the programs under way. The drive for half a million for the Faulkner Hospital is active, but the response is not so generous thus far as was expected. The Deaconess Hospital is in dire need of more than a million dollars to meet its needs.

Dr. Frank H. Lahey and Dr. Elliott P. Joslin have stated facts relating to the work of the Deaconess Hospital, which demonstrate the high quality of service provided by this institution for all classes of people.

This campaign will be in full swing after the next meeting of the committee.

VETERANS ADMINISTRATION ESTABLISHES A RESEARCH CENTRE AT BEDFORD

Doctor Winthrop Adams, Medical Officer in Charge of the Veterans Administration Hospital for the care of disabled veterans at Bedford, Massachusetts, announces that the Veterans Administration is to establish a Research Centre at the hospital at Bedford. This will be the fulfillment of plans originally initiated by the Medical Council of the Veterans Administration, which for the past several years has urged the founding of Research Centres with a view to making the fullest possible utilization of the vast amount of material and experience which is being developed by this enormous medical activity now being conducted by the Government.

The Research Centre at Bedford will be devoted to Research in Psychiatry and Neurology and will be under the immediate supervision of Doctor Hugo Mella, whose appointment has been made by the Medical Director of the Veterans Administration and approved by the Medical Council. Doctor Mella graduated from the Medical School of the University of Georgia in 1913 and has since that time been continuously engaged in his elected specialty, Psychiatry, and principally Neuropathology. Following his service in the military forces during the World War he took a postgraduate course at Harvard in Neuropathology, and after serving three years as Associate Professor of Neuropathology at the University of Denver Medical School he entered the service of the Veterans Bureau as Assistant to the Medical Director, then Doctor Edgar O. Crossman. He was later assigned as Supervisor and Principal of the Postgraduate School in Neuropsychiatry conducted by the Veterans Bureau at its hospital at the Bronx, New York, and following that was assigned as Clinical Director of the new hospital opened in 1928 at Northport, Long Island. From there he was transferred as Clinical Director to the Veterans Hospital at Palo Alto, California, where he also had supervision over the Diagnostic Centre established at that point.

Doctor Mella is a member of the American Medical Association, the Massachusetts Medical Society, a Fellow of the American College of Physicians, and a Member or Fellow of all of the societies and Associations concerned with Neurology and Psychiatry in this country.

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of thirty-six million for the week ending November 28, indicate a mortality rate of 10.5 as against a rate of 10.7 for the corresponding week of last year. The highest rate (17.8) appears for Richmond, Virginia, and the lowest (6.2) for Waterbury, Conn. The highest infant mortality rate (12.4) appears for Cambridge, Mass., and the lowest for Flint, Mich., Miami, Fla., Portland, Oreg., Schenectady, N. Y., South Bend, Ind., and Waterbury, Conn., which reported no infant mortality.

The annual rate for 82 cities is 11.8 for the forty-eight weeks of 1931, as against a rate of 11.9 for the corresponding weeks of 1930.

THE COMMITTEE ON PUBLIC RELATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY

This committee held its first meeting December 15, and its report is awaited with interest.

DR. LOUIS E. PHANEUF ADDRESSES THE NEW YORK OBSTETRICAL SOCIETY

Dr. Louis E. Phaneuf, professor of gynecology, Tufts College Medical School, addressed the New York Obstetrical Society on December 8, 1931, on "Radium Therapy in Uterine Hemorrhages of Benign Origin."

CORRESPONDENCE

A NEW WARD OF THE CENTER BUILDING OF THE NEW ENGLAND MEDICAL CENTER GROUP

December 9, 1931.

The Editor of the *New England Journal of Medicine*,

A newly built and equipped ward, containing twenty beds, was opened on Friday, November 27, in the center building of the New England Medical Center group. In addition to a male and female ward, each containing six beds, there are available two two-bed rooms and two single-bed rooms with private bath. The ward beds are each placed in cubicles, separated from each other by glass and wood partitions.

The opening of the ward has been made possible by a grant from the Bingham Associates Fund.

It is planned to use the beds for observation, diagnosis, and investigation. The facilities of the observation ward are available not only to Boston Dispensary patients, but also to patients from any part of New England whose physicians wish them to have careful diagnostic investigation at a cost commensurate with the financial status of the patient. Adequate facilities are available for all necessary laboratory and clinical diagnostic work. The laboratory examinations are conducted by graduate physicians in a laboratory connected with the ward.

The ward is in charge of Dr. Samuel H. Proger, late assistant in the clinic of Professor Krehl of Heidelberg. The resident physicians are Dr. Burkhard Kommerell of the Medical Clinic of the University of Leipzig, and Dr. William Edward Storey of Atlanta, Georgia. The Chief of the Medical Service at the Boston Dispensary is Dr. Joseph H. Pratt. Dr. Robert W. Buck is Associate Chief.

Physicians desirous of sending patients for study are invited to communicate with Dr. Samuel H. Proger, Boston Dispensary, 25 Bennet Street, Boston, or with the superintendent, Miss Ruth Borcherding.

Very truly yours,

ROBERT W. BUCK.

AN EXPLANATION OF THE PURPOSE OF AN INTERVIEW WITH THE REPORTER OF A NEWSPAPER

December 11, 1931.

Editor, *New England Journal of Medicine,*
Dear Sir:

In a recent issue of the *Boston Post* there appeared an article purporting to represent my views on certain phases of medical practice. The Committee on Ethics and Discipline of the Massachusetts Medical Society very properly took me to task for this article and asked for an explanation which I gladly give.

In a previous issue of the same paper there had appeared an article with the striking and to my mind most unfortunate and misleading heading, "It costs $65. to tell you that you are well." One of the principal objectives of our tuberculosis campaign in this country, with which for the past 25 years I have been more or less intimately connected, is to persuade people to go to doctors once a year for an annual overhauling and to seek advice when diseases are still in their early stages. We have tried in every way to inform the public that such examinations and advice are within the reach of everyone no matter how poor the circumstances. I was, therefore, much disturbed at the title of this article. It was solely and purely to correct this impression that I talked with the reporter, who wrote the article in question, whom I had known for some years and whose judgment and discretion I had every reason to trust.

At that time I was just back from my vacation and my work in consequence had piled up so that it was almost more than I could handle. When the manuscript of what I was alleged to have said was given me I took it for granted that it gave the impression I wished to convey and therefore, I regret to say, gave it only the most cursory glance. Had I given it the time and thought that I should, it certainly would not have appeared in the form that it did. This fault of mine I freely admit and regret. My motives I firmly maintain were of the best, the results, I regret to say, owing to my hurry and a somewhat trusting disposition, were very bad.

Very truly yours,
JOHN B. HAWES, 2D.

RECENT DEATHS

FULLER—DR. JAMES ROBERT FULLER, a retired Fellow of the Massachusetts Medical Society, died at his home in Andover, December 11, 1931, aged 83.

He was a graduate of Bellevue Hospital Medical College, New York, in 1875, joined the Massachusetts Medical Society from Boston in 1892 and moved to Andover in 1896. His name was placed on the retired list in 1921.

Dr. Fuller was the son of the late Rev. Samuel Fuller, D.D., and the father of Samuel L. Fuller.

DERBY—DR. GEORGE STRONG DERBY, Williams Professor of Ophthalmology, Harvard Medical School, died of a cerebral hemorrhage at the Phillips House, Massachusetts General Hospital, December 12, 1931, at the age of 55.

OBITUARY

HENRY COLT, M.D.

Pittsfield has lost an important citizen in the person of Dr. Henry Colt, who died at his long time home in that city, December 8, 1931, passing away in his sleep without any premonitory symptoms.

The son of Henry and Elizabeth Bagoc Colt, he was born in Pittsfield, November 9, 1856. He was prepared for Williams College at the high school and was graduated from Williams with the class of 1878 and then went to the Harvard Medical School where he received his M.D. in 1881. Returning to his native city he began practice with Dr. Franklin K. Paddock, once president of the Massachusetts Medical Society, and Dr. J. F. A. Adams, an early leader in the crusade against tuberculosis. Throughout his practice Dr. Colt kept the same sign in the same place at the entrance to the Berkshire Life Insurance Building. When Dr. Paddock died in 1901 Dr. Colt succeeded him as medical examiner of the second Berkshire district and held the position at the time of his death,—thirty years spent in the public service.

Of a retiring nature yet he had a determination when his mind was once made up that nothing could shake. He was in many of the activities of Pittsfield—was president of the Country Club for 16 years, a member of the Monday Evening (Literary) Club, a Rotarian, a director of the Pittsfield Third National Bank and Trust Company.

He was medical director of the Berkshire Life Insurance Company, chairman of the medical board of the House of Mercy Hospital and president of the Pittsfield Anti-Tuberculosis Association. Other positions he held were president of the Berkshire Athenaeum, the Berkshire County Red Cross and president of the Massachusetts Medico-Legal Society and of the Berkshire District Medical Society. He was councillor from that district to the Massachusetts Medical Society from 1906 until his death, holding also, of late years, the office of supervising censor.

Dr. Colt never married. He made his home with his sister, Miss Fannie E. Colt, and his niece, Miss Frances G. Colt.

He was a friendly, witty and philosophical help in his community for fifty years.

NOTICES

FOUND: AN OBSTETRICIAN'S BAG

A bag probably belonging to an obstetrician was found in a suburb of Boston several weeks ago.

The finder advertised the bag, but no one has claimed it.

It will be sold unless a claimant appears.

ANNOUNCEMENT

Ralph W. Daffinee, M.D., announces the opening of his office at 270 Commonwealth Avenue, Boston, Mass.

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 5:17 P. M.

December

24 Public Health in the Coming Year

31 Mental Health

State House Broadcast

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

Radio Health Forum

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

PROGRAM

Special Series of Broadcasts

Sponsored by the Massachusetts Department of Public Health. Courtesy WEEI. Mondays at 7:15 P. M.

White House Conference on Child Health and Protection

Round Tables

December

21 Round Table No. 1—Why Another Conference?
Conducted by George H. Bigelow, M.D.

28 Round Table No. 2—How Much Care Does the Well Child Need?
Conducted by Mr. Frank W. Kiernan

1932

January

4 Round Table No. 3—Health in Education—Education in Health
Conducted by Raymond Patterson, Ph.D.

11 Round Table No. 4—What a Community Owes to Its Children
Conducted by Lila Owen Burbank, M.D.

18 Round Table No. 5—Unto the Least of These
Conducted by Mr. Alfred F. Whitman

REPORT AND NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

The regular meeting of the Harvard Medical Society was held in the Peter Bent Brigham Hospital Amphitheatre on November 24. Dr. George R. Minot presided.

The medical case was presented by Dr. Eppinger. A forty-six-year-old watchmaker entered the hospital a week ago complaining of pain and swelling of the left hip of two months' duration. His past history was irrelevant except for primary lues and gonorrhea twenty years ago. Two years ago his left leg became weak and he began to limp. Two months ago he stumbled and fell upon his left hip. Since that time it has been painful and swollen. The pain has been severe, gnawing in character. He lost fifteen pounds during the two months before admission.

On examination he was found to be emaciated, and to have marked arteriosclerosis. The tibiae were bowed anteriorly and thickened. On the left hip just below the crest of the ilium was a pulsatile mass, about twelve centimeters in diameter. A bruit could be heard over it. A Wassermann test was positive. X-rays of the pelvis showed scattered areas of rarefaction and of trabeculation. There was destruction of the upper end of the great trochanter. The chest was clear. The diagnosis of Paget's disease with sarcomatous degeneration was made.

Dr. Kendall presented the surgical case. A twelve-year-old schoolgirl complained of painless swelling of the right thigh of six months' duration. At the age of three she had had a similar swelling, which had persisted a few months and then had disappeared completely. Three months before admission she had pain in the thigh. The swelling had interfered with walking for the past three weeks. She had had no temperature or night cries.

Physical examination was negative except for the thigh. There was a swelling on the upper anterior surface, questionably fluctuant, with no heat or pain. X-ray showed a large soft tissue swelling, and a slight bony defect seven centimeters below the tip of the great trochanter.

The mass was thought to be an abscess. On exploration 350 cc. of serosanguineous fluid were evacuated. The femur was smooth. Culture of the fluid produced a few colonies of Staphylococcus aureus, which were thought to be a contamination.

Ten days after operation the swelling had again increased to the same size. A new x-ray suggested a cavity in the bone where the previous defect was seen and thinning of the cortex over it. More fluid withdrawn very carefully again showed Staphylococcus aureus. The wound was reopened, the osteomyelitic cavity "saucerized" and Dakin's tubes put in.

A diagnosis of Brodie's abscess was made. Myxoma, dissecting lipoma, and sarcoma had been considered before the first exploration.

The address of the evening was given by Dr. Russell Haden, Director of the Medical Division of the Cleveland Clinic and formerly Professor of Experimental Medicine in the University of Kansas. He discussed "The Development of Methods for the De-

termination of the Numbers, Size and Hemoglobin Content of the Red Blood Cell."

Dr. Haden has long been interested in the history of the red blood cell. He has made a valuable collection of apparatus used in its quantitative measurement and of the literature concerning it. The lecture was profusely illustrated with photographs of his material.

The red cell was first described by Swammerdam in 1658. He, Malpighi, and von Leeuwenhoek are usually regarded as co-discoverers. Leeuwenhoek probably did not recognize the single cell, since he drew them in groups of sixes.

The first blood count was made by Vierordt in 1851. In the interval of two hundred years, many books had been written on the red corpuscle. However, the current opinion was expressed by Hunter who said that he thought early observers imagined more than they saw, and that it was unimportant.

For some years the counting methods were accurate although the instruments were poor. Welcher made the first blood pipette, while the modern type of pipette was introduced by Malassez. The modern type of counting chamber was first made by Gowers in 1877. Although none of his apparatus is used today most of the credit for the early work on blood should be given to Hayem. Dr. Haden believes that Hayem should be called the Father of Hematology.

The first blood count made in America was reported in 1876 by Dr. E. L. Keyes in the *American Journal of Medical Sciences*. The first articles on blood counting were written by Lennon in the *Virginia Medical Monthly*, and by Henry and Nancrede in the *Boston Medical and Surgical Journal*. These appeared respectively in February and April, 1879.

Estimations of the size of red blood cells were first made by von Leeuwenhoek, who compared them with grains of sand. He obtained a diameter of 8.3 microns. Frequent measurements were made from the beginning of the nineteenth century.

The volume of the red cell was studied first by Welcher who built models of the cells of many animals and measured them. The hematocrit was originally developed by Hedin; valuable contributions were made by Dr. Joe Capps working in Dr. Cabot's clinic.

Berzelius first studied the blood pigments. Hoppe-Seyler introduced the term hemoglobin, described the formulas of many of its derivatives, and demonstrated the loose combination of oxygen with hemoglobin.

Quantitative measurements of hemogloblin were originally made by determining the iron content. Spectroscopic methods were introduced in 1866. Welcher used the first colorimetric method, which consisted of comparing the unknown with dilutions of normal blood. The Gowers' hemoglobinometer was introduced in 1878.

Welcher believed that there was a constant relation between the number of corpuscles and hemoglobin content of the blood. The error of this was pointed out by Hayem, who first used the term "color index".

ESSEX NORTH DISTRICT MEDICAL SOCIETY

January 13, 1932, Kenoza Country Club, Haverhill —12:30, Dinner.

Dr. George H. Bigelow, Commissioner of Health of Massachusetts: "The Relationship Between the General Practitioner and the Department of Public Health, Past, Present and Future."

E. S. BAGNALL, M.D., *Secretary.*

BOSTON MEDICAL HISTORY CLUB

Monday evening, December 21, at 8:15 P. M., 8 The Fenway, Boston.

Chronology of anatomy, Garry de N. Hough, Jr., M.D., Springfield.

Anatomical books illustrated with superimposed flaps, LeRoy Crummer, M.D.

Notes on the original superimposed anatomical drawings of Dr. Alexander Ramsay, James F. Ballard.

Light refreshments.

JAMES F. BALLARD, *Secretary.*

NEW ENGLAND BAPTIST HOSPITAL

The New England Baptist Hospital Staff will hold a special meeting on December 30, at 5:00 P. M., in the new addition to the Nurses' Home at the Baptist Hospital. Dr. Carl H. Greene of the Mayo Clinic will speak on the "Recent Advancement in the Treatment of Addison's Disease." Physicians are invited.

MASSACHUSETTS PSYCHIATRIC SOCIETY

There will be a meeting of the Massachusetts Psychiatric Society at the Boston Psychopathic Hospital on Wednesday, December 30, at 8 P. M. The program will be published in the *Journal* next week.

WINFRED OVERHOLSER, M.D., *Secretary.*

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

December 17—Medical Clinic at the Peter Bent Brigham Hospital. See page 1168, issue of December 10.

December 17—Beth Israel Hospital Pediatric Club. See page 1174, issue of December 10.

December 17—New England Hospital for Women and Children. See notice on page 1175, issue of December 10.

December 18—New England Roentgen Ray Society. See page 1175, issue of December 10.

December 18—The Boston City Hospital Clinic. See page 1169, issue of December 10.

December 21—Boston Medical History Club. See notice above.

December 30—New England Baptist Hospital. See notice above.

December 30—Massachusetts Psychiatric Society. See notice above.

January 6 - June 1—New England Heart Association. See page 891, issue of October 29.

January 8 - May 6—The William Harvey Society. See page 745, issue of October 8.

March-April, 1932; Autumn, 1932—International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

January 13, 1932—See notice above.

May 4, 1932—Annual meeting at Lawrence.

Essex South District Medical Society

January 6, 1932, Wednesday—Danvers State Hospital, Hathorne. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Harry Solomon, Boston. Subject: Modern Treatment of Syphilis.

February 3, 1932, Wednesday—Council Meeting, Boston.

February 10, 1932, Wednesday—Hawthorne Hotel, Salem. Dinner 7 P. M. Speakers: Dr. Lincoln F. Sise and Dr. Harry H. Germain. Subject: Selection of the Anesthetic for the Patient and Operation. Dr. Sise to speak from the viewpoint of the Anesthetist, and Dr. Germain from the viewpoint of the Surgeon.

March 2, 1932, Wednesday—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Subject to be announced later. Speaker: Dr. Elmer W. Barron, Boston.

April 6, 1932, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, 1932, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, 1932, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

Meetings will be held on the second Tuesday of January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

January—At Melrose.

March—At Reading.

May—At Woburn.

All meetings on the second Wednesday of each month unless otherwise announced.

Norfolk District Medical Society

January 26, 1932—Boston Sanatorium, Mattapan. Dr. Timothy J. Murphy. Meeting to be devoted to Diseases of the Chest.

February 23, 1932—Place to be announced. Clinico-Pathological meeting, Dr. Frank S. Cruickshank, Dr. F. B. Mallory, or a representative from his department.

March 29, 1932—Place to be announced. Boston Public Health Meeting. Speakers, Honorable James M. Curley, Dr. Francis X. Mahoney, Dr. Charles Wilinsky, Dr. W. H. Griffin.

May, 1932—Annual Meeting, date and place to be announced.

May 5, 1932—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P. M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

January 7—Speaker: William Reid Morrison, M.D. Subject: Stomach Surgery.

February 4—This meeting will be held at the Quincy City Hospital. The program will be furnished by the members of the hospital staff.

March 3—Speaker: Roderick Heffron, M.D. Subject: Pneumonia.

April 7—To be announced later.

May 5—Annual meeting.

The time of all meetings is 12 o'clock noon. All meetings, except February 4, will be held at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

January 27, 1932—General Meeting in Association with the Boston Medical Library. Titles and speakers to be announced later.

February 24, 1932—Clinical Program, the Children's Hospital.

March 30, 1932—Clinical Program, New England Deaconess Hospital.

April 27, 1932—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D., President.
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

Worcester District Medical Society

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

The Practice of Medicine. By A. A. STEVENS. Pp. 1150. 3d Edition, Entirely Reset. W. B. Saunders Co. 1931. Price $8.00.

The rapid progress of internal medicine during the past few years is nowhere better illustrated than in the extensive revisions necessitated by each reissue of any standard textbook. New concepts have arisen in the consideration of many of the diseases of the blood, of the glands of internal secretions, and of the infectious and the deficiency diseases; while the list of subjects considered for the first time is equally impressive. The publishers of Stevens' "Practice of Medicine" are to be congratulated upon the thoroughness of revision which they have permitted.

Moreover, complete modernization of the book has been accomplished without sacrifice of the original endeavor of concise presentation of the most necessary points in pathology, diagnosis and treatment. One is impressed with the amount of useful information and practical application available, although readability has sometimes been sacrificed to brevity through precise use of long words. The frequently superfluous statistics have been largely omitted, and profuse references amply substantiate opinions expressed about disputed problems.

There are minor criticisms such as the advisability of placing influenza among the diseases of known etiology, and scarlet fever among those of unknown origin. One also feels that the treatment of lead poisoning is inadequately considered, and that cancer of the large intestine deserves more space. But for the most part there is very fair distribution of material, and extremely sane discussion of moot problems.

The reviewer feels that he can recommend this book not only as a satisfactory text for students, but also as a starting point for reference work.

What the Public Should Know About Childbirth. By WALKER BOURNE GOSSETT, M.D. The Midwest Company, Minneapolis. $2.00.

The author in the preface states that the book is based on an experience of rather more than thirty years of obstetric practice, and yet there is scarce-

ly an original comment in it. It is almost entirely based on quotations from various published papers and reports to which we have all had access for years.

The book fails to tell the public what it should know in regard to childbirth. Its possible usefulness is lessened to a great extent because it has no index. There are several typographical errors. It will in no way serve the purpose for which it was written.

Surgical Clinics of North America. Pacific Coast Surgical Association Number. October, 1931. Volume 11, Number 5. W. B. Saunders Company, Philadelphia.

Rexwald Brown of Santa Barbara reports a case of carcinoma of the pancreas and discusses the Coffey-Humber treatment. In a series of autopsies and in research work with rats, no regression could be discovered as a result of the use of the Coffey-Humber extract; although occasional regression has been previously noted.

Else of the University of Oregon emphasizes the dangers of neglecting cholecystitis, especially inflammation of the liver substance, chronic pancreatitis, dilation of the common duct, and myocardial changes. He demonstrates experimentally the extension of infection from the gall bladder into the liver.

Gilcreest and Mullen of San Francisco present a valuable description of the epidural and transsacral injection of alcohol for the relief of pain, especially in advanced malignancy. The technic is similar to that used for sacral anesthesia, and repeated injections are used starting with 10% alcohol and increasing to 30%. There is rarely any significant motor disturbance.

Hinman of the University of California ably discusses the operative indications and technic of three types of radical urogenital surgery, viz., carcinoma of the prostate, genital tuberculosis, and tumor of the testis. Thorough case reports and illustrations add to the value of this clinic.

O. W. Jones of the University of California believes that apoplexy may be attributed to a head trauma occurring within the previous eight weeks. In these cases operative interference is often of great value.

Phillips of Los Angeles presents a very interesting case of allergic colitis. The patient had been an invalid for ten years in spite of the use of the ordinary treatment for colitis. A cecostomy was done that completely sidetracked the colon. After eliminating a long list of foods to which he was sensitive by skin tests, he made rapid improvement.

Reichert of Stanford University reports satisfactory results in the treatment of posttraumatic localized headache by the subarachnoid injection of air.

A. J. Scholl of Los Angeles presents four cases of hydronephrosis and ably discusses the indications for the various types of treatment.

Swift and Flothow of Seattle offer a concise, well-balanced outline of the treatment of head injuries. The primary indication is to combat shock for which they largely rely on intravenous 50% glucose. They also discuss pain of sympathetic origin, illustrating by a case where the diagnosis was confirmed by a novocaine injection of the right dorsal sympathetic tract and where permanent relief was obtained by a gangliectomy.

This issue also includes a large number of brief reports of unusual cases.

Cancer and Race. By MAURICE SORSBY, M.D. William Wood and Company. New York. 1931. Pp. 120. Price $3.00.

This book analyzes in great detail the problem of the susceptibility of Jews to cancer. Various and conflicting statements claim that Jews enjoy some immunity to cancer and that they are unusually susceptible. A study of this kind is not only of interest in cancer but also in the great problem of the importance of the racial factor in disease.

Sorsby presents first the cancer mortality of Jews in London, primarily as based on the burial entries of Jewish burial societies. The statistics of Amsterdam, Vienna, Budapest, Warsaw, Leningrad and Lodz are next studied. The rates for Jews and non-Jews in the same cities show closer correspondence than do the rates for Jews in different cities. In general the Jews showed a higher incidence of cancer of the gastro-intestinal tract and of the ovaries and a lower incidence of cancer of the uterus, of the penis and of the buccal cavity.

Gynecology and Urology for Nurses. By SAMUEL S. ROSENFELD, M.D., F.A.C.S. New York, William Wood & Co., 1931. Price $2.00.

This textbook for nurses appropriately combines the subjects of Gynecology and Urology, which are briefly treated from the nurse's standpoint without an excess of technical detail. The common diseases and operative procedures involved in these two special regions are adequately described and are illustrated by ninety-seven excellent text figures. The book is compact, simply and understandably written, and should fill a place of very definite value in the teaching of these subjects to nurses.

Textbook of Histology for Medical and Dental Students. By EUGENE C. PIETTE, M.D. (Chicago). Philadelphia: F. A. Davis Company. 1931. Price $4.50.

This new textbook of histology, intended primarily for medical and dental students, aims to present the subject with the greatest possible brevity and compression compatible with adequacy. This it does to a fairly satisfactory degree. Particularly commendable is the chapter on the autonomous nerve system. There are two hundred and seventy-seven illustrations, chiefly reproduced from other authors.